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Original Articles

DIAGNOSIS OF OTOGENIC MENINGITIS

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Until recent years, the early diagnosis of otogenic meningitis was of little practical significance, except inasmuch as it enabled the physician to prepare the friends of the patient for the fatal termination of a disease, which in its suddenness often comes as a lightning from a clear sky. But since surgical treatment has been employed in this disease, and not without success, the importance of an early diagnosis has increased appreciably inasmuch as it may indicate an operation to prevent this fatal result.

Before entering on the diagnosis of otogenic meningitis, a few facts as to the etiology may be mentioned.

Meningitis, which is according to all statistics the most frequent intracranial complication in suppurative otitis media, appears very rarely in infants under a year. It is not rare after the fortieth year, but older children and young people are those most frequently attacked.

It is generally assumed that otogenic meningitis is, in most cases, caused by a retention of pus in the middle ear. My experience does not support this supposition. I have not, as a rule, found otoscopic signs of retention in cases of otogenic meningitis, and in about half of the cases observed by me the mastoid region did not exhibit the slightest trace of infiltration or tenderness. I am, therefore, inclined to believe that the nature of the suppuration, combined with the anatomic relations of the petrous portion of the temporal bone and the mastoid process, play the most important part in the pathogenesis of otogenic meningitis.

As to the nature of the suppurative process, various observers and I myself have most frequently found pneumococci, staphylococci and streptococci as the cause of the inflammation of the soft membranes of the brain in cases of otogenic meningitis. Another fact elicited by my researches is that in most cases of otitis media causing meningitis there is a very marked *acute* osteitis of the mastoid process, even when the suppuration of the tympanum and the osteitis of the mastoid process are chronic. This easily explains why otogenic meningitis is frequently preceded by pains in the diseased ear.

Meningitis of otogenic origin is often produced through a suppuration of the labyrinth, a fact to be borne well in mind during operation. That phlebitis of the sigmoid sinus is not unfrequently the medium is also of practical importance in eventual surgical interference. Otogenic meningitis is, in other words, often combined with suppurative otitis intima and with sinus phlebitis, the two latter being often primary in relation to the meningitis. It is, however, my impression that the suppuration of the middle ear now and then spreads explosively to all parts of the cranial cavity simultaneously, thus causing two or more intracranial complications.

As to the nature of the meningitis caused by otitis media, it must be observed that the term "meningitis" is here always used as an expression for "diffuse purulent leptomeningitis." Of this disease there is, in my opinion, but one trustworthy objective sign, viz., turbidity of the cerebrospinal fluid, emptied by lumbar puncture, caused by overproduction of round cells. I lay much stress on this objective sign, because an otitis media can cause all the subjective symptoms of a meningitis and also the objective signs, especially rigidity of the neck and the sign of Kernig, without producing a diffuse purulent meningitis—cases which are often classified under the term of "meningitis serosa." On the other hand, a few cases are reported in literature of abscess of the brain and of phlebitis of the sigmoid sinus with turbidity of the cerebrospinal fluid, in which the postmortem examination did not reveal any macroscopic signs of purulent leptomeningitis. I consider these few cases, however, as cases of diffuse purulent meningitis, in which the meningitis has been cured prior to the death of the patient.

Symptomatically otogenic diffuse leptomeningitis may be described as an acute febrile disease with "diffuse" brain symptoms, restlessness, insomnia, irritability, alternating with drowsiness, delirium, etc. "Focal" brain symptoms are, however, very frequent, viz.:

Ocular: nystagmus—often, though of labyrinthal origin—spasms and pareses of the muscles of the eyeball (double vision, squinting, conjugated deviation).

Facial: Paralysis of the facial nerve.

Relating to the extremities: Jackson's epilepsy, hemiplegia, etc.

The appearance of "focal" brain-symptoms, caused either by disturbances of the circulation in the surface of the brain or by diffuse encephalitis, often gives rise to a false supposition of the existence of an abscess, rendering diagnosis extremely difficult.

The objective signs are: Vasomotor disturbances of the skin (pallor alternating with redness of the face, "taches cérébrales," the sign of Trousseau, hyperesthesia, etc.), irregularity of pupil action, and rigidity and contraction of groups of muscles causing rigidity of the neck and the sign of Kernig. I have, however, observed three cases of otogenic meningitis in which neither of the two latter symptoms were present, although the patients were under observation up to the time of their death.

Changes of the fundus of the eye are not frequent in patients with otogenic meningitis. In twenty-four consecutive cases observed by me only four presented choken disc or optic neuritis.

The fever is seldom low (about 100 F.); in exceptional cases there may, however, be no rise of the temperature in the beginning of the disease. More frequently, and especially during the onset of the meningitis, it is very high (about 104) and the affection then often assumes the appearance of an acute infectious disease (pneumonia, typhoid fever, influenza), from which it may be difficult to distinguish it. The temperature is, however, generally only moderately raised, varying from 101 to 103. Even in cases complicated with sinus phlebitis the fever hardly ever assumes a pyemic type. The pulse is generally quick, and not infrequently irregular.

Albuminuria appears now and then.

The diagnosis of otogenic meningitis is often difficult. First, it may be difficult to decide whether the meningitis is due to the otitis media present or whether the latter be an accidental complication. In such, by no means rare, cases, the circumstance that the affection of the brain has developed some time after the ear disease is all that speaks for a connection between the two: for, in my experience, acute suppuration of the middle ear rarely produces meningitis before it has lasted a week or more, the time in the cases I have observed varying from three days to five months. In other words, otogenic meningitis does not generally appear until after the infectious agent has acted for some time on the soft membranes of the brain. There is, furthermore, reason to believe that there is a stage of the otogenic meningitis in which the subjective and objective symptoms of the meningitis may be fully present, but in which the pathologic changes produced by the diffuse purulent leptomeningitis may be as yet undeveloped. This stage Körner, the eminent German otologist, to whom we are so much indebted for his contributions to the pathology of the otogenic intracranial complications, calls a preliminary stage (*Vorstufe*) of meningitis. I would rather suggest the term "initiatory stage of meningitis," as I include under this head only cases in which the cerebrospinal fluid has already become opalescent. This is of practical importance, inasmuch as it gives us a right to hope for a successful operative treatment even in cases where all subjective and objective signs of meningitis are developed, if only the operation is performed early.

Second, the diagnosis of meningitis in cases of chronic or acute suppuration of the middle ear is often very difficult, for otogenic meningitis may simulate or may be simulated by "meningeal irritation" or "meningismus" without any organic disease of the brain, by pneumonia and other acute infectious diseases (typhoid fever, septicemia, influenza and malaria), tuberculous meningitis and by other otogenic intracranial diseases.

True meningitis differs from the series of symptoms called "meningeal irritation" or "meningismus," i. e., the well-known meningeal symptoms often appearing in children and young persons during the course of an acute otitis media, inasmuch as meningitis generally (1) appears some time after the onset of the ear disease, (2) starts with great suddenness and intensity, (3) may exist without symptoms of retention or of mastoiditis, (4) runs its course with increasing rapidity and intensity of the symptoms (a circumstance on which I lay much stress, and which has not been sufficiently recognized), and (5) does not occur in infants, in whom "meningeal irritation" often appears.

Tuberculous meningitis differs from meningitis due to otitis, inasmuch as tuberculous meningitis generally (1) is secondary to other tuberculous manifestations, (2) begins with a preliminary stage, (3) runs with less violent symptoms, and especially with a lower temperature, (4) exhibits "focal" brain symptoms more frequently than otogenic meningitis, and (5) is very rare in persons over the age of forty.

Typical otogenic cerebral abscess differs from meningitis due to otitis in the following points: Cerebral abscess has (1) a distinct prodromal stage, (2) slower development of the symptoms; further (3), often exhibits "focal" symptoms, (4) produces slow cerebration and slow pulse.

All subjective and objective signs may, however, lead to a wrong diagnosis, excepting only turbidity of the cerebrospinal fluid emptied by lumbar puncture. I lay great stress on this procedure as a diagnostic agent, having used it in my hospital over a hundred times without ill effects, and in several cases it has been the only way in which a correct diagnosis could be obtained. A further proof of the importance of this diagnostic agent is that, in some of these cases in which lumbar puncture was dry or the fluid mixed with blood, no correct diagnosis could be arrived at until postmortem.

In cases of meningitis of aural origin the cerebrospinal fluid is more or less opalescent in the first stage of the disease, becoming more and more milky in appearance, and at last puriform. Under the microscope numerous round cells are always found and nearly always an abundance of polynuclear leucocytes. Bacteria are generally present, but I have seen a few cases in which no bacteria appeared even immediately before the fatal end of the disease.

Clear cerebrospinal fluid does not, however, with certainty exclude meningitis, as it always takes some time for the fluid to become opalescent. In three cases of postoperative meningitis observed by me more closely I found in one case that the cerebrospinal fluid was still normal twenty-four hours after operation, in another it was turbid twenty-six hours, and in the third thirty-six hours after.

If, then, in the first stage of meningitis the puncture yields a clear fluid, it is necessary to repeat it once or twice to be certain.

In cases of tuberculous meningitis the cerebrospinal fluid is generally only slightly opaque, often containing small flocculi of fibrin. The cells are nearly all mononuclear, and bacteria are seldom found. In a few cases I found bacteria which in the earlier stages of my experience led me to the false belief that I had to do with otogenic meningitis. Tubercle bacilli are sometimes present.

The therapeutic value of lumbar puncture is in my opinion almost nil.

Besides lumbar puncture there are two diagnostic agents of value, viz., examination of the hearing and of the static part of the labyrinth. The first examination consists in proving whether there is any hearing in the affected ear or not, total deafness speaking in favor of a labyrinthine suppuration with secondary meningitis. The best method is to apply the noise-apparatus of Barany in the healthy ear and then to examine whether the patient hears the speaking voice with the diseased ear. This method is, however, often difficult of applica-

tion when the patient is a child, or when there are more pronounced brain disorders. This objection does not apply to the examination of the static function of the labyrinth. It is performed by syringing the diseased ear with cold water (50 F.); if the static part of the labyrinth is destroyed, no nystagmus is produced, while in cases in which this part is intact the eyeball makes small jerks toward the opposite side, especially when the patient's eyes are turned in that direction. The destruction of the static part of the labyrinth points to meningitis produced by suppuration of the inner ear. A functional examination of the labyrinth can also be useful in cases where both ears are diseased, the ear in which the labyrinth is destroyed being the probable cause of the meningitis.

Havnegade 31.

DISPOSAL OF SPUTUM

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For some time past I have given considerable attention to the disposal of sputum, and the idea has very strongly impressed itself on me that we are altogether too careless in disposing of this dangerous factor as regards health, especially in workshops where large numbers of persons are employed and in conjunction with hotels, saloons, barber shops, railway stations, public buildings, etc.

Signs will be found displayed in almost every town and city of the United States which caution persons not to spit on the floor, but in cuspidors, even invoking legal penalties for failure to observe the injunction. Yet the methods for the disposal of the contents of these receptacles are very faulty in a good many instances.

Persons with incipient and ill-defined cases of tuberculosis, as well as those suffering from this disease in its later stages, during their daily ambulations and at work at their respective vocations, use the same cuspidors to receive their expectorations as those used by uninfected persons, making the handling and disposition of the sputum a constant and ever-present source of danger to the cleaner (see high mortality from tuberculosis among servants in census reports), as well as to the community in which the factory, hotel, or public building is situated. The observing person will find that these vessels are cleaned near drinking-water places, or roughly dumped on the streets or yards adjacent to such buildings, or in the respective basements or cellars connected therewith.

The type of cuspidors in use at the present time in the great majority of cases appear to be faulty, very little attention evidently having been paid to ease and thoroughness of cleaning. The principal fault in the majority of this type and class of vessels on the market is the undercut found just below the constriction or neck. It is at this point that expectorations are received on the inner flare or side of lip; they run under this shoulder or undercut and remain lodged or fixed there. The repulsiveness of the cleaning operation almost prohibits the cleaner from placing his hand or even a sponge under this point for the proper removal of expectorations.

While, of course, the moist tubercle bacillus can not be readily transported by currents of air, yet it is viable and sooner or later dries in one manner or another, and is easily transported.

While breaking into several parts a number of cuspidors constructed along the lines of pattern shown in Figure 2, which were picked up in various quarters of cities, I found incrustations in some instances one-half inch in thickness, and from a dry to a semi-solid consistency, but, without exception, all in a putrid condition, and furnishing a most fertile culture media.

In designing the type of cuspidor shown in Figure 1 and now adopted by this branch of the government I have tried to avoid all the objectionable features found in the older styles, of all shapes, some of which are very ornate, but all showing, more or less, that very little thought had been given to the proper and thorough cleansing of such receptacles.

The sharp flare or lip shown in Figure 1 is intended for quick drainage into solution placed within vessel and hereinafter described. Sufficient constriction has been left at the neck partially to hide the contents in the cuspidor for esthetic reasons; yet the opening permits all parts of the vessel to be placed under observation as to thoroughness in cleaning.

The undercut or deep shoulder has been avoided in the type shown in Figure 1, which permits easy, rapid cleaning with a cotton dish-mop and boiling water in the absence of special facilities for such specific cleaning. The bottom of the cuspidor shown in same figure is slightly convex and in continuity with the round sanitary corners or coves, all with the special object in view of self-drainage and easy, effective cleaning.

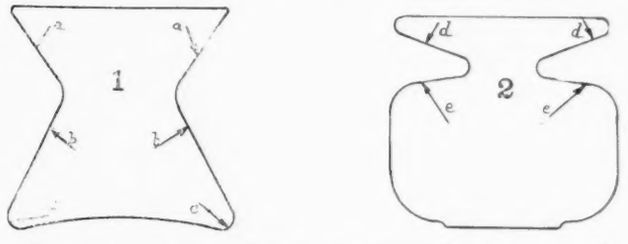

Fig. 1.—Self-draining sanitary cuspidor. Note sharp flare (a) to drain quickly, absence of undercut (b), and rounded corner (c) continuous with convex bottom.

Fig. 2.—Insanitary cuspidor. Note flat flare (d), which is slow in draining, and sharp undercut or shoulder (e).

In the general system that has been adopted, illustrated, and presented herewith the cleaner picks up the soiled and infected cuspidors from the floors of the work-rooms in a nested fashion five at one time, after a manner shown in Figure 3, by a specially designed sanitary lifter or clutch, made of two pivoted members surrounded by a guard and surmounted by a handle and a simple locking device to relieve the constant pressure of the hand when the loaded lifter is to be carried any distance. The idea of this device was first conveyed to me by the obstetrical forceps, from which it is an evolution, so to speak.

The cuspidors are then carried by the same lifter to a box truck, shown in Figure 3, which is lined with galvanized sheet iron, and are deposited, still nested, between gas-pipe standards that are threaded and screwed through the bottom of truck to ensure rigidness, such uprights preventing the tipping of vessels, and also permitting the easy entrance of the lifter to pick up five sterilized cuspidors contained in same truck, at the same time that the five infected or soiled vessels are deposited. This permits their being laid down or distributed by the same instrument in the place of those picked up, serving, additionally, as a time-saving procedure.

After the trucks are filled in this manner, on each floor, they are wheeled to a freight elevator and dropped to the basement, where is situated the sterilizing chamber, shown in Figure 4.

The truck is wheeled directly into the chamber and up near the edge of trough; the side of the box truck is then removed, and the operator, as shown in Figure 4, seizes the lip or flange of the soiled and infected cuspidor with a short pair of hand forceps, lifts the vessel clear of the gas-pipe standards fastened to the bottom of the truck, and plunges the cuspidor into the boiling water in the trough, and, at the same time, with a pronation of the forearm, overturns the vessel *under* the water.

By this method the entire contents escape into boiling water, which cooks or coagulates the albumin in the micro-organisms, if such be present, and at the same time renders sterile other material before passing through the outlet, which is simply a pipe, surmounted by a wire tripod, between the wires of which boiling water flows constantly, and which thus permits the easy escape of all material under 1½ inches in diameter, but stops banana-skins, apple-cores, etc., that would otherwise clog the pipe leading to sewer, which is 3 inches in diameter.

Fig. 3.—Method of collecting cuspidors from floors of work rooms.

Still grasping the flange or lip of cuspidor after it has been overturned in water with the short forceps before described, the operator swings the now upright and roughly cleaned cuspidor forward under a jet of live streaming steam, which is released by pressure on a foot tread, the posterior part of which is connected with a chain to a lever in the side of an inverted steam whistle valve which it controls, and which promptly closes the instant the pressure of the foot is removed from the tread, thus shutting off the jet of steam in an automatic manner. Figure 4 shows the first cleaner and this mechanism in action; and at the rear end of the trough the other cleaner is shown, who has completed the procedure just described and is about to thrust the now sterile cuspidor into rack clutch, still grasping the short forceps containing cuspidor. When sticky or tenacious material persists in clinging to vessel and the jet of steam fails to dislodge the débris, it is instantly removed by a hand dish-mop suspended by chain to rack and which is allowed to fall back in the boiling water after it has been applied by the other hand of the cleaner to remove substance on surface of cuspidor. The mop is therefore always sterile, within easy reach, and readily picked up by the chain attached to the handle (R) by the disengaged hand of the cleaner.

In Figure 5 the truck is being refilled by one cleaner, who is plucking the thoroughly washed and sterilized vessels from the spring clutch on the rack for this purpose. As each layer is placed in the truck previous to its transmission back to the work-room the other cleaner is pouring, from an ordinary hot-water can, a solution of potassium permanganate of a strength approximately 1 to 2,000 into each cuspidor, to the amount of four ounces, where the solution remains until the vessels are next cleaned at the termination of each eight-hour shift, and thus receives and disinfects the sputum between stated cleaning periods.

At first I used a solution made up for this purpose of corrosive mercuric chlorid 7.3 gr., citric acid 7.7 gr., eosin coloring q. s., to each gallon of water, giving a strength of approximately 1 to 8,000. The mercuric chlorid was used, of course, for its germicidal properties, the citric acid[1] to retard the coagulation of the albuminoid substances found in expectorations and to prevent the formation of insoluble albuminates, thus permitting the bichlorid to permeate the mass more thoroughly. The eosin was used simply for purposes of differentiation from harmless liquids for safety in handling.

Fear of persons drinking the solution with suicidal intent and of cases of accidental poisoning among the cleaners, however, caused me to substitute potassium permanganate 1 to 2,000 as a cheap, practical, nontoxic, easily prepared, odorless disinfectant, as well as

1. Egbert in his text-book on hygiene was the first to draw attention to the use of this agent in preventing rapid coagulation of albumin.

a germicide, in lieu of the former solution. I still use the bichlorid, however, in the strength of 1 to 1,000 to scour water-closet seats at the end of the day's work, and in the form of a spray of the same strength on the floors after the latter are scrubbed, allowing the solution to dry out with the damp floors. This method is better than to use the bichlorid in the wash-water, where it is precipitated as chlorids, owing to the dirt, etc., in the water.

The Government pays but 14 cents per pound for the potassium permanganate salts, and ten pounds only are used for an entire year's supply for the purpose mentioned in the building, where upward of 4,500 persons are employed under one roof. It is made up in a fresh state each night in the cans shown in illustration.

The expense and the possible objection to its pungency renders the use of formalin in a large way impracticable. Saturated solutions made up of chlorid of lime, while cheap and efficient, are objectionable on account of the odor. Solutions of carbolic acid, strength 1 to 40, are objectionable on account of odor and toxic properties in any buildings aside from institutions and hospitals. Yet, as is well known, all are efficient and practical if suitable and indicated by each particular instance.

While a great many patented antiseptics are on the market together with proprietary preparations with high-sounding, euphonious titles, the majority of them are expensive and mask the indications of putrefaction by their own particular odors, and do not always remove the cause. Their effectiveness, for this reason, in a good many instances is questionable.

Experience in dealing with the different temperaments and idiosyncrasies of a large number of persons gathered together for stated periods of time each day has taught me that it is a very difficult matter to please all, especially as concerns odors, although there may be no real basis for complaints.

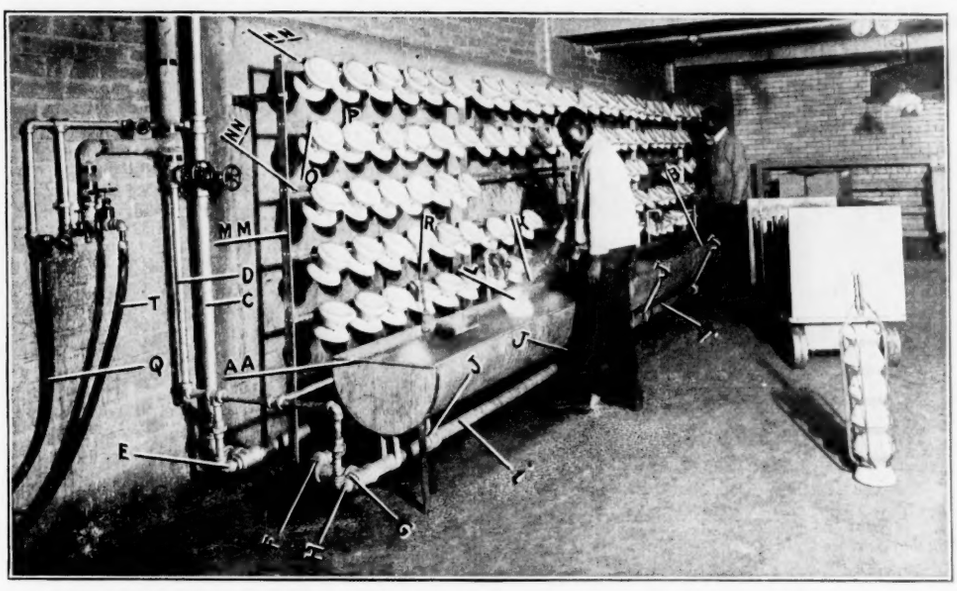

Fig. 4.—Sterilizing chamber in basement and method of unloading trucks together with procedure in washing and sterilizing the soiled and infected cuspidors. (See text for explanation of the apparatus.)

The general view of the sterilizing chamber shown in Figure 4 will be here dwelt on to some extent regarding details. The galvanized iron trough (AA) is made up of 22-gauge galvanized sheet iron, the sections being riveted together and all joints soldered. It is smaller at the fore end to permit of easy drainage toward the opening for the pipe (B) leading from the trough to the sewer. The trough rests on band iron strips, cradle fashion, terminating, on each side, by an extension bent at right angles, forming a web foot that is embedded in the cement floor after being secured by expansion bolts that ensure rigidness. The cold-water pipe (C) leading from the street main is placed at the end of the trough leading down from the wall of the room. Running parallel with it is one-inch steam-pipe (D). At the point marked E, by means of a ⅜-inch nozzle, the stream of cold water is mixed with steam, which raises the temperature to about 110 F. The then heated water continues on its way, and, by means of a short turn or bend (F), some three feet in extent, makes its return to point G, whence the partially heated water is again mixed with the jet of steam from the ⅜-inch nozzle (H), at once raising the temperature to 212 F., or the boiling point of water. This method avoids the noise and "knock" of a direct jet of steam thrown into a body of water. It produces boiling water in from six to eight seconds, and maintains it always at the boiling point. Nozzles are within the pipes mentioned.

The boiling water continues along the pipe (*i*) and emerges through the pipes marked JJ up into the trough by a fountain effect (K). As the water, by street pressure only, is thus forced up, the "wash" penetrates through a wire-mesh soap-pocket placed against the inner side of the trough (which does not show in the illustration), wherein is placed a bar of common washing soap, which procedure results in soap-suds with boiling water.

At the rear of the trough is placed a rack (MM) constructed of angle-iron or made of sectional gas-pipe, as the case may be, supported by vertical braces, in addition to parallel cross-pieces (NN) placed 14 inches apart, and perforated by holes every 10 inches, through which pass ⅛-inch flat-headed carriage bolts, running through the eye of the rack clutch (O) and secured by nuts on top of the cross-pieces (P). The rack clutches are made of ⅛-inch steel spring wire and are held rigid by a bolt through the eye formed by twist in loop of spring or clutch. Figure 4 shows one operator about to thrust a vessel into the clutch, which expands to receive it and then contracts around the constriction or neck holding cuspidor firmly, mouth down, for drainage. The vessel dries very quickly by evaporation owing to heat imparted to cuspidor by the boiling water.

The rubber hose at the point marked Q is utilized for flushing the trough after the cuspidors have been cleansed and for freeing the bottom of the trough from tobacco quids, débris, etc., and such sediment as remains after water has been allowed to drain through the waste outlet to the sewer controlled by a valve; the short pipe (B) with wire tripod being removed

to allow the trough to drain flush to belly of bottom. The hose (T) is used to "blow" or conduct live, streaming steam in sterilizing inside of empty trucks before reloading, previous to transmission back to floors.

The trough in the sterilizing chamber and the hose (T) are also utilized in washing and sterilizing garbage-cans, some forty-five in number, placed at various points on floors of building to receive litter, food débris, fruit-skins, etc., of the employés. The cans are specially made of heavy galvanized steel, 20 gauge, with tightly fitting covers and convex bottoms to permit easy cleaning, and otherwise so constructed that the base of each can is smaller than the top or mouth, which permits their nesting within each other to aid rapid collection and to save space upon flat truck that can be made to hold twenty in the manner described but only four if the cans did not permit nesting.

Each day, just after lunch, a cleaner starts at the top floor of the building with truck and drops from floor to floor by means of a freight elevator and collects the cans at the various points by wheeling the truck near their respective positions to expedite and permit easy handling.

Fig. 5.—Method of placing solution in cuspidors and reloading trucks.

The cans are then roughly cleaned by being wheeled to and the contents being emptied into the crematory, again "nested," and taken to the trough in the sterilizing chamber, where they are immersed and washed in boiling water by means of a sawed-off mop-handle and floor mop, which I have found to be very practical for this purpose. Each can is then removed in turn from the trough and placed under the hose (T), which conducts live, streaming steam into each can by means of the manipulation of the hose by the cleaner. The cans are then nested again and removed back to floors. This method leaves a can cleanly and without disagreeable odor.

The cans are numbered consecutively and lettered for respective floors in red lead paint that withstands obliteration from the action of boiling water and repeated washings.

The floor of the room is composed of cement, graded toward the center, at which point is placed a cesspool trap, which permits rapid self-drainage and drying after the floor is flushed with hose (Q), and which is connected with sewer, thus insuring neatness and cleanly conditions.

Fourteen hundred cuspidors of the pattern shown in Figure 1 are washed and sterilized in the manner hereinbefore described at the termination of each working shift of eight hours.

Many of the employés use tobacco, which excites salivation, and their duties are of a sedentary nature and within a comparatively small one of floor space, which explains the great number of receptacles required.

Previous to the introduction of this method, about one year ago, sawdust spit-boxes were used, but they were insanitary and very dirty from the fact of the sputum collecting or "caking" on the sides, and the cleaning was very difficult, dangerous, and inefficient. Some idea of the magnitude of this work may be gained when the fact is stated that under the old system 400 barrels of sawdust were used each month, at a total cost of $100, to receive the sputum in the boxes.

The system appears to have its educational features along hygienic lines also, and, aside from promoting the health of employés, teaches, by practical illustration, a lesson in hygiene as to the care taken and of the danger of contact that must of necessity leave its impress on those observing its work, for it will be noticed that with the exception of the period during which the cleaner plucks the sterile vessel from the rack for purposes of reloading, as already described (Figure 5), the whole procedure from beginning to end is accomplished without digital contact. The educational feature mentioned was always before me while evolving the system, and served, in a measure, as a stimulus.

While, of course, the conditions shown by pictures of the sterilizing chamber are almost ideal, as befits a great government institution, yet without a special room a splendid substitute can be obtained in the corner of any basement in factory buildings, hotels and public buildings elsewhere in the United States at the cost of a few dollars, for it will be noted that the fittings and equipment are very simple.

It will give me great pleasure to answer any question pertaining to further details in reply to those persons who might be interested, after reading this article, in fitting up similar systems in their own factories, workshops, and public buildings by their own plumbers and steam-fitters, and I have given considerable space to complete details with that object in view.

While at the onset there were many prejudices and opposition to things new and which had to be overcome when I first broached and explained the method, yet by the special gold medal awarded this bureau for the exhibit of sanitary cuspidors, devices, and methods at the International Congress on Tuberculosis I have been amply and fully repaid for any thought, work, or experiment given on my part as concerns the system.

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Abuse of Heart Tonics in Valvular Lesions.—J. V. Montenegro of Madrid publishes an article in the *Siglo Medico*, May 8, 1909, laying down the principle that iron should be given in valvular lesions of endocarditic origin and iodid when they are due to arteriosclerosis. Many treat them all alike, however, giving digitalis at once, without stopping to analyze the cause of the disturbances. He urges the general practitioner to beware of such abuse of heart tonics, advising him to use iron or potassium iodid according to the above indications while studying the case further, and to give the digitalis intelligently if at all.

THE SURGICAL TREATMENT OF CERTAIN DEFORMITIES OF THE JAW ASSOCIATED WITH MALOCCLUSION OF THE TEETH*

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PHILADELPHIA

With the development in orthodontic practice it is surprising that so little advance has been made in the surgical treatment of prognathism, receding maxilla and other marked deformities of the jaw producing malocclusion. In the main the text-books on oral surgery contain no reference to the subject and little is to be found in modern treatises of surgery. In Von Bergmann's elaborate "System of Surgery," however, four lines relate that in a successful attempt to improve the deformity of a receding chin, Von Bergmann made an extensive resection of all of the processes, including the coronoid process, and subsequently displaced the entire jaw by the aid of an artificial dental apparatus.

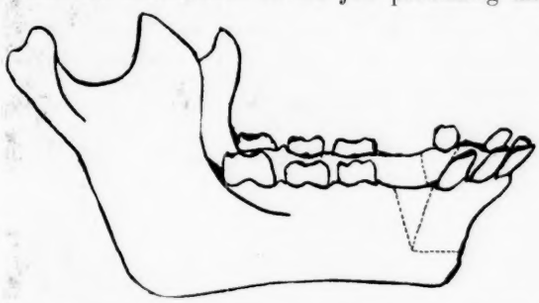

Fig. 1.—Diagram showing the osteoplastic resection of the lower jaw performed by Hullihen, July 12, 1848. The dotted lines indicate the lines of bone division with the saw. The triangular sections were removed from each side and the mobilized anterior segment of the jaw tilted back into occlusion.

HISTORY OF THE SUBJECT

Over sixty years have lapsed since Dr. S. P. Hullihen,[1] of Wheeling, Ga., successfully devised and performed an osteoplastic resection of the jaw, yet the modern works on dental practice and orthodontia mention but a single operation, and that similar in principle to this one of antebellum days. Dr. Hullihen's patient, a girl of 20, had an eversion of the lower lip with elongation of the lower jaw and protrusion of the process and lower incisors from the constant traction of a scar from a burn of the neck received fifteen years previous. Although an unsuccessful attempt to improve the condition had been made by two surgeons in New York City, Hullihen, without anesthetics, at a time when hemostatic forceps and antiseptics were unknown, boldly resected V-shaped sections from each side of the jaw, the section on the left side including the bicuspid. The V-shaped sections extended two-thirds of the way, through the bone, the apices being below. From the apices of the incisions the saw was turned horizontally forward, completing the section and leaving the upper two-thirds of the anterior portion of the mandible attached to the soft tissues only (Fig. 1). The removal of the V-shaped sections of bone permitted this loosened portion of the jaw to be pushed back, securing occlusion with the upper teeth (Fig. 2). From an impression taken in soft wax a silver plate was struck up which when applied held the section of the jaw in proper position. After this operation the tissues rapidly healed and Hullihen later transplanted a large flap of skin from the shoulder and upper arm to the neck to enable the head to be raised, and finally, by two further operations, corrected the eversion and deformity of the lower lip. Although these extensive operations were successful, nearly fifty years elapsed before a second bilateral resection to improve a

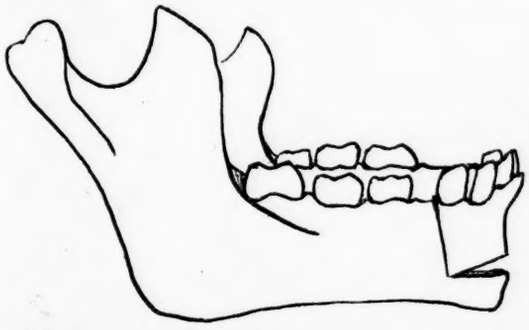

Fig. 2.—Diagram illustrating how the mobilized anterior segment was tilted back into occlusion in Hullihen's operation. This segment was held in position by a silver interdental splint. The nutrition of the separated portion of the jaw was maintained through its attachment to the lip. Similar types of operation are applicable to the upper jaw.

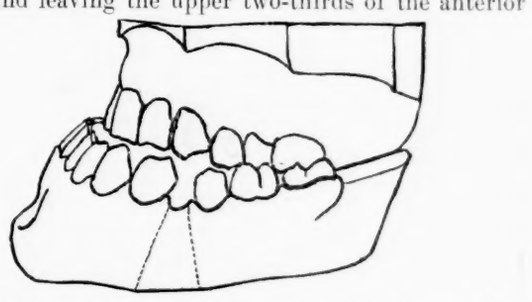

Fig. 3.—Diagram showing bilateral resection of the lower jaw advocated by Angle. A segment equal to that between the dotted lines is to be removed from each side of the jaw permitting the anterior part of the jaw to be brought into occlusion. The shape of the segments removed is to be modified by the conditions present in the particular case. Blair removed quadrilateral segments.

Fig. 4.—S. K., previous to operation, showing profile the result of inferior prognathism and malocclusion.

* Read in the Section on Stomatology of the American Medical Association, at the Sixtieth Annual Session, at Atlantic City, June, 1909.

1. Hullihen, S. P.: Case of Elongation of the Jaw and Distortion of the Face and Neck Caused by a Burn Successfully Treated, Am. Jour. Dent. Sc., 1849, p. 157.

deformed jaw was undertaken. The patient, a young man with a progresssive type of prognathism, under the care of Dr. James W. Whipple, of St. Louis,[2] was referred to Dr. Edward H. Angle, who suggested a bilateral resection of the elongated portions of jaw between the first molar and second bicuspid on the right side and the first and second bicuspid on the left. A year later, in 1897, Dr. V. P. Blair performed this operation through angular incisions below the jaw. Despite imperfect retentive appliances, making it difficult to hold the fragments in proper position and the infection of the wounds, the patient, after nine very troublesome weeks, finally obtained bony union and marked improvement. Dr. Angle[3] in 1898 reviewed this operation and emphasized the importance of removing V-shaped or wedge-shaped sections of bone (Fig. 3) and of previously preparing from models accurate vulcanite or metal splints to hold the fragments in proper position. In these cases, Dr. Angle writes, "any orthodontic procedure is powerless to render improvement and the double resection becomes the only resort." The same operation was independently advocated in 1896 by Dr. R. Ottolengui,[4] to whom the idea was suggested, by observing a resection of the lower jaw for cancer. Since the time of Blair's operation double resection of the jaw has been performed but few times, and this apparently important subject has not been further developed by the orthodontist, while the surgeon, although interested in resections of the jaw for necrosis, tumor or ankylosis, apparently has not realized the field for surgical measures for deformities beyond the range of the usual orthodontic practice.

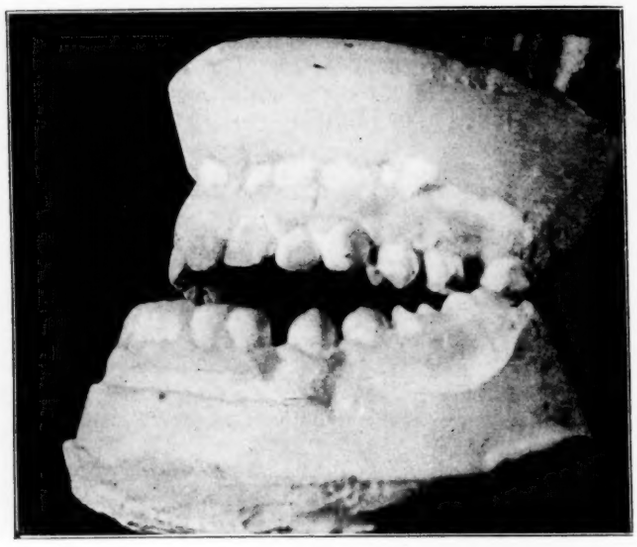

Fig. 5.—Model showing malocclusion in the case of S. K., left side.

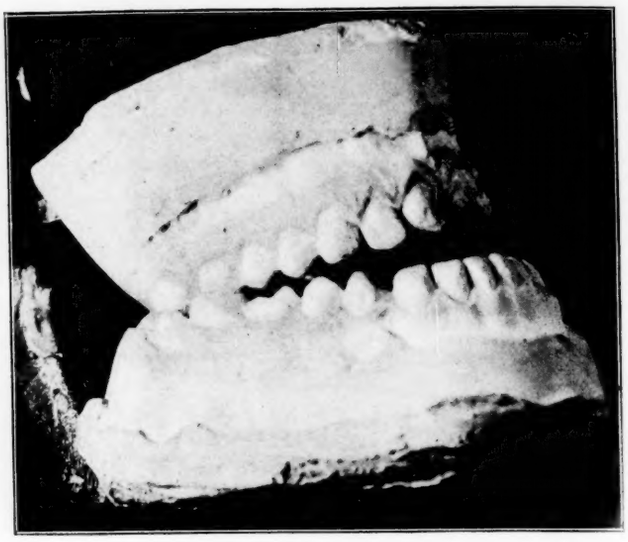

Fig. 6.—Model showing malocclusion in the case of S. K., right side.

Fig. 7.—S. K., four months after section of both rami, showing change in profile. The scar from the incision is shown.

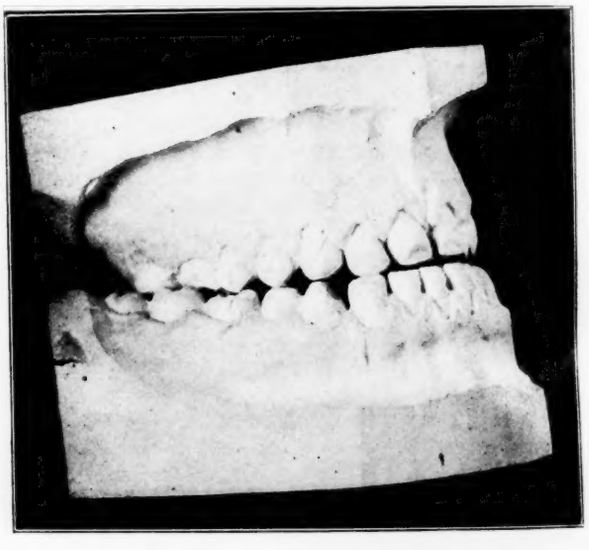

Fig. 8.—Model showing occlusion in the case of S. K., four months after operation.

REPORT OF CASE

My attention was attracted to this subject by observing a patient whose history is as follows:

2. Double Resection of the Inferior Maxilla for Protruding Lower Jaw, Dental Cosmos, 1898, p. 552.

3. Double Resection of the Lower Maxilla, Dental Cosmos, 1898, p. 635; see also, Bellin: Items of Interest, June, 1908, p. 422; Blair: Items of Interest, November, 1908, p. 829.

4. Discussion, Union Convention, Rochester, New York, Dental Cosmos, 1897, p. 143; Fowler: Items of Interest, January, 1897.

Patient.—Samuel K., aged 18, family history negative. No serious disease of childhood was recalled. During the past two winters he had had recurrent attacks of tonsillitis, but apart from this and a slight cold, he has had no illness for ten years.

Examination.—The tonsils were large; there was a moderate increase of adenoid tissue in the nasal pharynx; the nasal septum was inclined slightly to the right, and there was a chronic rhinitis of the hypertrophic type. The patient breathed almost exclusively through the mouth; the palate was highly arched, the dental arches were symmetrical and the teeth fairly regular, although small, short and poorly developed. Only the third molars on the left and the second and third on the right side could be occluded, the minimal separation between the upper and lower central incisors being 7 mm., and the lower centrals being in a plane at least 5 mm. in front of the upper centrals. The chin was rather pointed and prominent, and the patient said that, although the teeth were probably never in good occlusion, the condition had progressively increased during the past four years. The lips were long and the teeth did not show in ordinary conversation, so that the patient had been repeatedly asked if the teeth had been lost. In smiling and in talking the lips tended to curl in over the teeth, producing an unpleasant expression. In talking the tip of the tongue rested against the lower lip instead of the teeth so that enunciation had a mumbling character resembling that of an edentulous person. The patient could not bite hard or thin masses of food except by introducing them far into the mouth. Mastication was very imperfect, the food being bolted after a slight attempt at mastication. The lips were kept almost constantly open except during speech (Fig. 4). The patient was moderately well developed, but the chest was long and narrow. He was constipated but did not complain of indigestion.

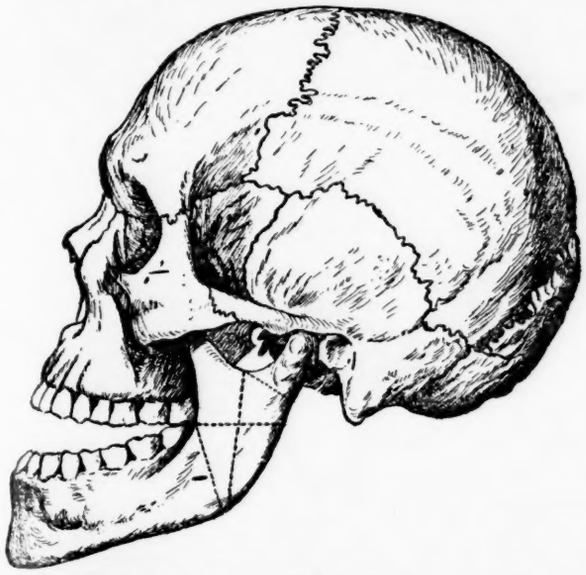

Fig. 9.—Diagram showing a condition of malocclusion, the dotted lines indicating various directions in which the ramus may be divided in order to overcome the deformity.

Choice of Measures of Relief.—The young man had presented himself for acne vulgaris, but the ugliness of the facial profile led me to examine the jaw and then to consider the possibility of surgical relief. At once it occurred to me that a section of both rami would be the operation of choice, but on investigation, to my surprise, I found no evidence that such an operation had ever been done previously. The patient was referred to Dr. S. H. Guilford to make sure that relief could not be obtained by any form of dental appliance. Dr. Guilford agreed as to the necessity for surgical intervention and suggested the operation of Angle. This operation seemed to me objectionable for the following reasons:

1. It would necessitate two compound fractures of the lower jaw.

2. At least one tooth with the adjacent process would have to be removed on each side, and in the removal of these two teeth the exposure of the roots of two adjacent teeth on each side of the mandible would be almost inevitable. Thus two teeth would be sacrificed, and four additional teeth placed in jeopardy.

3. The inferior dental canal with its vessels and nerves would be divided on each side.

4. The arch of the lower jaw would be broken into three portions, would be contracted and would require a special retentive appliance.

5. As the surface of bone would be exposed to the action of saliva and to infection in the mouth a greater or lesser degree of necrosis would be almost inevitable.

In one instance this operation was followed by loss of the mandible from necrosis.

The division of the inferior dental nerve seemed the least of these objections, as this nerve often reunites after division and even were the local anesthesia resulting from the division permanent the condition is not a very troublesome one. As contrasted with this operation a section through the ramus (1) would be free from dangers of a compound fracture within the mouth; (2) would not reduce the size of the dental arch or jeopardize any of the teeth; (3) if carried out above the level of the spine of Spix need not involve the inferior dental nerves or vessels; and (4), as the bone could be reached from without the mouth under aseptic precautions, the danger from aspiration would be slight even should suppuration or necrosis ensue. The septic fluids would be discharged externally and not pass into the mouth to be swallowed or be aspirated in the lungs; (5) the proper occlusion could be produced if necessary by external pressure through a chin-cup, if need were, without the use of any interdental appliance.

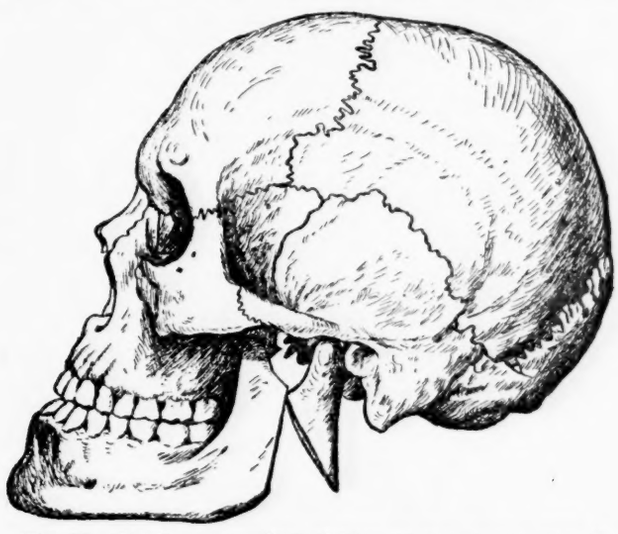

Fig. 10.—Result of a vertical division of the ramus. This line of section interferes with the leverage of the temporal muscle by approximating the coronoid and condyloid processes and tends to cause a marked posterior displacement of the lower part of the smaller fragment.

As an objection to a section of both rami, my attention was called to the narrow antero-posterior diameter of the pharynx, and the danger of producing suffocation by carrying the lower jaw and the attached tongue backward. As the support of the hyoid bone would not be changed by the operation, and as it seemed to be quite feasible to reproduce the deformity should signs of suffocation follow from the procedure, the following operation was undertaken:

Operation.—The patient was narcotized by scopolamin-morphin reinforced by a small amount of ether, Dec. 5, 1908, and an incision carried through the skin and subcutaneous tissue over the posterior border of the ramus of the jaw from the zygoma to a point under and anterior to the angle of the jaw. This incision was not carried through the deeper tissues for fear of injuring branches of the facial nerve and parotid duct. The outer fibers of the masseter muscle were separated and the external surface of the middle of the ramus exposed. With a small chisel a transverse section was then made through the

ramus. The operation was repeated on the other side, and the body of the jaw then forced back, and the teeth placed in the best possible occlusion. To facilitate this a triangular segment of the ramus was removed on one side, a procedure probably unnecessary, and especially undesirable if the wedges, to be later described, had been used. The opening in the muscle, fascia and external wound was then carefully closed by buried sutures of catgut, certain of the lower teeth wired to the upper and an external plaster bandage applied. No symptoms of suffocation were produced, but on awaking the patient complained that there was insufficient room in his mouth for his tongue and that he had difficulty in breathing through his nose. The occlusion of the jaws closed the lips, and made them appear redundant.

Postoperative History.—In the after course of the case it was found that the contraction of the masseter muscles and the depressors of the jaw, by closing the triangular gap in the ramus, tended to separate the jaws anteriorly and the wiring of the teeth was found to be insufficient and was discarded. Through Dr. Guilford an interdental splint was constructed, but this likewise was not found of much advantage, so that recourse was had to pressure of an ordinary aluminum chin-cup connected by elastic bands to a head-piece. By regulating the tension of the bands it was found possible to bring the teeth into occlusion. This appliance was worn about nine weeks to give sufficient time for the new bony tissue to fill the gaps in the rami, but two weeks or more before the appliance was removed the patient began voluntarily to separate and to use the jaws. There was no tendency to ankylosis and the lateral and vertical movements of the jaw were well retained. As a result of the operation the patient's appearance has been greatly improved (Fig. 7), the lips have become shorter, the chin less prominent, the mouth is kept constantly closed, the enunciation of words is better, nasal respiration has been spontaneously established, food is properly masticated, the tongue is no longer kept between the teeth, the chronic constipation has disappeared, and, possibly as a result of the operation, or the cessation of mouth-breathing, there has been no attack of tonsillitis this winter, although the tonsils remain enlarged and the nasal catarrh continues.

For those who consider enlarged tonsils, adenoids and nasal obstruction a cause of mouth-breathing and of faulty development of the jaws, we have here some suggestive evidence that the correction of deformities of the jaw may conversely at times be followed by the spontaneous disappearance of the nasal obstruction and by failure of the large tonsils to produce symptoms. By this I would not controvert accepted theories, but would suggest the thought that mouth-breathing and oral deformities may at times be the primary and enlarged tonsils, adenoids and nasal obstructions secondary conditions.

METHOD OF DIVIDING THE RAMUS

In determining the best direction for the line of section to be made through the ramus in the above case a series of interesting observations shown in the accompanying diagrams were made (Fig. 9). By a vertical section through the ramus (Fig. 10) the lower portion of the posterior fragment is pushed far back, leaving a large V-shaped gap with the apex above. The angle of the jaw is, therefore, carried much farther back than normal, while the distance between the coronoid and condyloid process is much decreased, reducing the leverage of the temporal muscle. In those conditions in which the mandible is not undershot but in which it is merely desirable to approximate the anterior teeth such a line of section might be worthy of consideration.

A section through the base of the condyloid process, as shown in Figure 11, produces less deformity but also reduces the distance between the condyloid and coronoid processes. The small size of the posterior fragment and the lack of extensive muscular attachment might favor the production of a false joint after such an operation.

Fig. 11.—Result of correcting the deformity by a section through the base of the condyloid process. This line of section reduces the leverage of the temporal muscle, and from lack of fixation of the smaller fragment would seem to involve a greater tendency to pseudarthrosis than certain other lines of section.

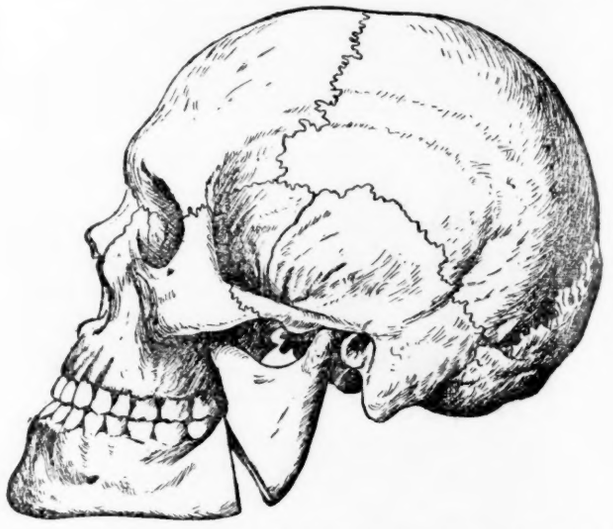

Fig. 12.—Results of a section between the ramus and the body of the jaw. The inferior dental canal is divided, the angle of the jaw increased, and the section is not so well adapted for the correction for prognathism. For lateral displacements of the jaw, this line of division, made on the side of the displacement may be useful.

An oblique section running from above, downward and backward through the lower part of the ramus, as shown in Figure 12, leaves the bulk of the ramus intact and produces a moderate grade of deformity. A section of this type, or one more nearly vertical, could be employed for lateral deviations of the mandible, the line of section, of course, to be made on the side toward which the jaw deviated, as the separation of the fragments by a wedge would cause the jaw to be carried to the opposite direction correcting the deformity.

In Figure 13 is shown the result of correcting the deformity by a transverse section of the ramus on a line approximating the masticating surfaces of the teeth. As this line of section gave the least secondary deformity and as both fragments are well fixed by muscular attachments, this line was the line of section decided on in the present case. The strong masseter muscle splints the

two sections and binds them firmly together. Indeed, the pull of the masseter muscle by tending to close the gap in the ramus so strongly tends to tilt the chin downward that a firm counter-support is necessary.

To obviate this we have now devised wedges of ivory or magnesium to be slipped between the separated portions of the ramus (Fig. 14), so as to put the posterior fibers of the masseter muscle on the stretch and to tilt the chin upward. In this way the chief difficulty in the after-treatment, the tendency of the chin to drop, is overcome. The wedges are very much the shape of an ordinary collar-button, the extended flange at each side tending to prevent displacement. To provide for the varying thickness of different rami I have had the wedge constructed like a small bolt, the thin flat head of the bolt being approximated to the inner surface of the ramus of the jaw, and an outer flat nut being screwed down, holding the parts firmly in apposition. Ivory and magnesium are the substances selected for the appliances, as each is susceptible to sterilization, and to absorption when buried in the tissues.

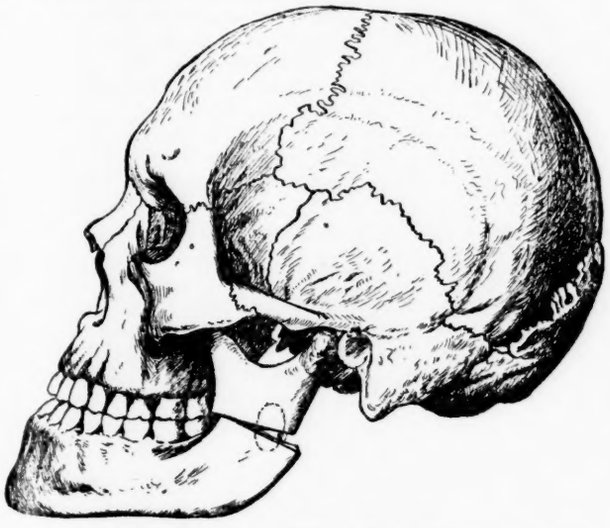

Fig. 13.—Transverse line of ramus division selected in the case of S. K. This line of section produces the least deformity, and if placed above the level of the spine of Spix enables one to avoid injury to the contents of the inferior dental canal and, moreover, does not interfere with the normal leverage of the temporal muscle. Both fragments have extensive muscular attachments serving to splint the parts after operation. The dotted line indicates the outer plate of the wedge of ivory or magnesium suggested by the author to maintain the elongation of the ramus, and to overcome the traction of the masseter muscle.

The section may be carried out by means of a small chisel, a burr actuated by a surgical engine, or the spiral osteotome of Cryer. The chisel has the advantage of the fact that it may be manipulated through a very small incision and with very little exposure of the bone. A vertical incision one inch long placed in front of the ear will enable one experienced in the use of the chisel to make the required section. Indeed, a narrow chisel may even be carried through the skin through a mere puncture and the bone division accomplished by the sense of touch alone. The section may likewise be carried out from the inside of the mouth with no external incision. The mouth is widely opened, a vertical incision made over the anterior border of the ramus through the mouth, as in Paravicini's operation, the tissues separated from the inner surface of the ramus, care being taken to avoid the internal lateral ligament, and, guided by the finger introduced through the incision, the bone divided by means of an appropriate burr or chisel.

There is some danger of necrosis of the ramus from infection from the mouth after such an operation. In a number of instances, however, in which I have exposed the inner surface of the ramus in this manner and have injected solutions of osmic acid into the inferior dental nerve, no troublesome necrosis has resulted despite the contact of the bone with saliva and an irritating chemical solution.

Fig. 14.—Wedge introduced into the line of section, viewed from behind. The introduction of this wedge overcomes the tendency of the anterior part of the jaw to tilt downward.

Besides necrosis a disadvantage in this method, however, is that an accurate approximation and support of the fragments by wedges can not be obtained and recourse must be had to interdental splints or the use of the chin-cup until the bone be united and the gap filled. Of course, in most instances, interdental splints firmly applied previous to the operation, to be later wired or bolted together, afford the best method of retention.

In considering the operative treatment of a deformity of the jaws one should not limit himself to the consideration of a single operation but should, until further advances have been made, consider the following possibilities:

1. By surgical measures it is possible (a) to change the relation between the body of the lower jaw and the rami so as to produce protrusion, recession, tilting or lateral displacement of the body of the jaw upon the ramus; (b) to change the shape of the arch of the jaw, either increasing or decreasing the size of the arch or altering its form; (c) to change the relative position of an anterior section of the jaw as related with a posterior section of the body and ramus; (d) to transplant and change the position of segments of the alveolus with

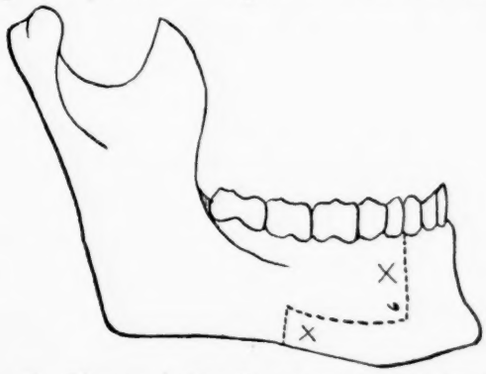

Fig. 15.—Diagram showing line of section suggested to enlarge the arch of the jaw. After the mandible has been divided as indicated by the dotted lines the segments are separated sufficiently to secure the proper occlusion and are maintained in position during the process of healing by an appropriate interdental splint or other appliance. By resecting the segments of bone indicated by XX the same line of section may be used to diminish the size of the arch of the jaw. By placing the incision anteriorly, the arch may be widened; by placing the line of section laterally one or both sides may be lengthened as desired.

contained teeth, the arch of the jaw not being completely divided, nutrition being maintained by the preservation of attachments to the soft tissues.

2. When it is found by a study of models in the particular case that a correction of the deformity and a fair occlusion may be obtained without dividing the dental arch, the preferred operation is the section of one or

both rami along the lines found to be best adapted to the particular case. This operation is useful for many cases of prognathism, receding chin, and certain lateral deviations of the jaw. In certain instances, as in hypoplasia, it may be necessary to combine it with other operations designed to increase the size of the arch.

3. Where it is desired to enlarge the dental arch I would suggest the operation indicated in Figure 15. In this operation a vertical section of the alveolus is carried two-thirds of the way through the jaw, the line section is then carried at right angles for a variable distance and the remaining third of the jaw then divided parallel to but in a different plane from the first vertical section. The arch is then to be opened by sliding the segments of the jaw on each other and fixation in the proper position secured by adjusting an appropriate interdental splint or other appliance which previously has been prepared. By doing this operation on the anterior part of the jaw the arch may be widened, and if placed laterally one or both sides of the arch may be lengthened. With a resection of the divided bone ends, this operation may likewise be used to reduce the arch at any point, or the arch may be reduced by a simple resection of a V-shaped or wedge-shaped section of bone as may be found desirable.

4. To change the plane of occlusion of only a segment of the jaw, a bilateral V-shaped or wedge-shaped resection after the method of Angle may be used or an osteoplastic section after the plan of Hullihen.

5. Somewhat similar operations are to a lesser degree available for the deformities of the upper jaw. Kocher has shown that a transverse supra-alveolar resection on the superior maxilla is feasible, and as this operation may be used to mobilize one-half or the entire dental arch, it is obvious that it will enable decided changes in position for the correction of deformity. The separation of the superior maxilla in the mid-line or a plastic displacement of a portion of the alveolus with the contained teeth is likewise feasible. Unfortunately most of these operations are more difficult and attended with more serious hemorrhage and other complications than the operations on the lower jaw. The fixation of the mobilized portions of jaw after these operations, however, involves less difficulties than in the case of the mandible.

The above operations are briefly mentioned to indicate the surgical procedures which may be employed for the correction of deformities when the less serious orthodontic measures are unavailing and to stimulate the development of this field. A consideration of forms of malocclusion resulting from the diseases of the temporomaxillary articulation and malformation of the bone which interfere with the normal movements of the jaw is considered beyond the scope of the present paper.

2033 Walnut Street.

ABSTRACT OF DISCUSSION

DR. J. E. NYMAN, Chicago: I think that the successful operation reported presents a solution of the distressing conditions which are so frequently brought to our attention, and for which orthodontia can do little or nothing, and that is unilateral hypertrophy of the jaw between the shaft and the ramus. I have had three cases of unilateral hypertrophy in a practice of about fifteen years. Unfortunately I could suggest no operation which bade fair to produce favorable results. It seems to me that this operation will be of especial service in unilateral hypertrophy.

I think that frequently the fact that there is delayed union along the lines of section where a saw or burr has been used, is not so much because heat has been developed, but because of the fact that innumerable spicules of bone have been left which act as foreign bodies which must be absorbed or thrown off before regeneration and formation of new tissue can take place.

DR. GEORGE V. I. BROWN, Milwaukee: Dr. Babcock's paper is a beautiful exposition of his subject and of the method of his operation. The result is phenomenal. I did not believe such a result could be secured and have hitherto felt it safer to cut off the entire anterior portion of the jaw and have some dentist put in bridge work to complete the case, as was done in one of my cases in which the jaw extended so far forward as to make this possible. In another case the jaw was too short and we gave prominence to the chin, yet both resulted from burns.

I have looked with a good deal of skepticism on operations that have been described and recommended from time to time for patients requiring removal of sections of the jaw as described by Dr. Babcock, but his description is so complete and the result so perfect, that I see the promise of great good results in the future.

DR. S. L. MCCURDY, Pittsburg, Pa.: In a case similar to this which came to me a few months ago there was much separation of the incisors. The molars came together and there appeared to be a projection. I decided as the easiest and best operation to extract the lower molars and then chisel away the alveolar process as far as necessary, so that when the mouth was closed the incisors came in contact; the upper molars did not come in contact with the place where the lower molars had been extracted, and after that I removed two teeth, one on each side. Later the dentist made an appliance which increased the number of teeth which could be used for mastication, and the result was satisfactory; not, however, so satisfactory as that obtained by Dr. Babcock, and I think this will be the operation selected in the future.

DR. A. R. DRAY, Philadelphia: I feel indebted to Dr. Babcock for demonstrating his operation for the cure of a condition which hitherto has baffled the best efforts of the orthodontist and the dental surgeon. I did not exactly catch how Dr. Babcock immobilized the lower jaw while union was taking place. He referred briefly to an interdental splint, a poor thing at best. In case of ordinary fracture I think he would be tempted to discard appliances placed beneath the chin in order to prevent mobility. Wiring together the teeth of opposing jaws I have found is a splendid way to maintain a fixed position for fractures, and the operation described by Dr. Babcock is of course for a fracture of the inferior maxilla.

DR. S. L. MCCURDY, Pittsburg, Pa.: I should like to place myself on record at this time in connection with the question of repair of bones. I have been practicing the wiring of long bones by allowing them to remain *in situ*, recognizing the fact that when a bone was disturbed at the point of fracture or when we had an ununited fracture which required wiring, if during the process of freshening the ends of the bones or sawing them off they were torn and dragged about, and the soft tissues attached to the ends of these bones torn loose and the peritoneum stripped, we could not expect to have repair of the bone. I make this statement because I have seen a number of these operations performed, and the general surgeon usually does a through and through wiring which requires a great deal of destruction of soft tissues. The soft tissues must be preserved about the field of operation or nutrition will be destroyed and exfoliation will result in addition to the fact that there will be no union.

In a paper I read in Boston recently I described an operation of wiring which did not include a complete through and through drill, but a wiring of just half the bone. With the notched drill one can pull the wires through from the central canal.

DR. W. BABCOCK, Philadelphia: The advantage of the chisel is that it enables one to work through a very small opening, does very little injury to the adjacent bone, and at the same time forms a very linear incision. The operation may be done in a very simple way, similar to an osteotomy of a long bone, by puncturing the soft tissues and carrying the chisel to the bone, the division of which occurs under the sense of touch. It is possible, therefore, to make this line of section with prac-

tically no external disfigurement, and with little injury to the adjacent tissues. The objection which is raised to the chisel when used on the skull, the concussion of the brain, hardly holds when one deals with the mandible, since this bone is fairly insulated from the skull proper.

Regarding the great field of purely orthodontic methods, I would again emphasize the fact that the oral surgeon in this field of work should be the associate and assistant of the orthodontist, and he must depend on those skilled in orthodontia to tell him when operation is necessary. In this case, I felt it was not proper for me to operate without putting this patient in the hands of my dental colleague to see if something could be done without operation. Moreover, after the operation has been done, as in this case, there often will remain some residual deformity to be corrected by appliances. The surgeon hews out the rough structure and leaves the finishing touches to be worked out later by the dentist.

In answer to the other questions, I would say that I first wired the teeth and depended on a plaster bandage, but the tension pulled the wires from the teeth. The degree of the pull during the first days is amazing. The condition is one in which the surgeon is really lengthening the ramus, and the attached muscles contract to prevent this lengthening. The result is that one has at the long end of the lever a traction which requires firm retention, preferably a full interdental splint. In this case, after wasting two or three weeks with plaster bandages and other appliances, I depended entirely on a chin cup with strong traction by rubber bands. In the interval the jaw had slipped slightly forward and the bone had partly filled in and something of the original correction was lost. This was left on in all about nine weeks. During the last three the patient began to chew food and use his jaws. It has been said that there is a danger theoretically of death with this type of operation. I think the mortality will be extremely small, as there is no danger from the inhalation of septic material, as when the mucosa is incised.

The oral surgeon is very fortunate in that he deals with bones especially well supplied with nourishment. He can do more than can the general surgeon—he can produce more mutilation and get better final results than perhaps can be obtained in any other part of the body. Those of you who have seen the crushes of the bones of the face, and have seen how the fragments unite after being placed in position will realize this. The perfect immobilization of bone fragments in the treatment of fractures seems to reduce the amount of callus formation. Too much callus, on the other hand, might give deformity. Although there was some play in this case, not enough callus was thrown out to be disfiguring. The bones of the head as a rule produce very little callus.

It makes little difference what else one uses so long as the teeth are kept properly together there is very little tendency for the fragments to slide one way or the other, as they are immobilized by the muscles.

INFANTILE ECZEMA*

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Infantile eczema occupies an important place in the clinic of children's diseases, and frequently presents great difficulties in its management. The etiology and pathology of this affection are as yet but little understood, and knowledge concerning them is needed. Even the most distinguished pathologists are not agreed as to the entire clinical history of this morbid process, whether by infantile eczema we mean a definite disease or merely a symptom of some unknown process. It is the purpose of this paper to discuss briefly some of the more recent views expressed on this matter, and to present the clinical history of the affection.

* Read in the Section on Diseases of Children of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

ETIOLOGY

At the outset attention must be directed to the confusion which might arise through considering this form of eczema with other skin eruptions produced by irritation, such as that caused by dirt, perspiration, etc. The most rational view, based on clinical observation, would be to consider eczema an external manifestation of some internal disorder. Careful observation of these cases confirms a first impression that the lesion on the skin may be compared with a barometric index which fluctuates with the prevalence of internal storms. The skin lesion may have exhibited a tendency to disappear or at least to abate somewhat, though concomitantly with an attack, moderate or severe, of indigestion, or because of some error or indiscretion in diet, the disease reappears and spreads with great activity. In a word, it may be stated that true eczemas in children are dependent on constitutional disturbances. The presence of bacteria in the secretions or on the denuded surface may be the result of a secondary infection and should not be considered as positive evidence that there exists between these germs and the disease a causal relationship. Some of the older authors may be quoted in corroboration of this belief.

Henke[1] thought that eczema was due to overfeeding, both in quantity and quality. Jorg[2] noted that these eczemas occurred more frequently in well-fed, fat babies, and thought that overfeeding played an important part. Similarly, Bohn[3] thought that the disease was due to overfeeding and constipation. The French authors lay great stress on hereditary influences as causes of the disease. Thus, Comby[4] thinks that arthritis, eczema, gout, obesity, asthma and various neuropathic states in the parent tend to cause eczema in the offspring. That this view is based on facts is corroborated by every observer's clinical experience. In very many of these cases it is found that the family history shows distinctly evidences of gouty and arthritic states and allied conditions.

L. F. Meyer thought that overfeeding, especially of such organic foodstuffs as casein and fat, gave rise to an excessive elimination of salts in children. Leighton,[5] on the other hand, is convinced that eczema is frequently of neurotic origin, even in those cases in which some external irritant is active. He recognizes two forms of eczema, (1) the idiopathic or ganglionic form, originating along the tract of the sympathetic nerves, and (2) the peripheral or traumatic form.

Variot[6] asserts that well-developed children, especially, and breast-fed, as well as artificially nourished children, are attacked by the disease.

Gaucher found an inhibition of metabolism in every case of eczema, with an increase in the nitrogen extractives and the chlorids and a diminution in uric-acid excretion. He regards eczema as an autointoxication, the poisons being eliminated through the skin, and these poisons being the result of incomplete oxidation of the nitrogenous products.

Marfan[7] classifies these cases in two forms: The first form is characterized by the localization of the eczema on the scalp, the eruption being moist and crusty. Associated with the scalp eruption is a wet or crusty eruption on the cheeks and ears, the rest of the

1. Henke: Handbuch für Kinderkrankheiten, 1809.
2. Jorg: Handbuch für Kinderkrankheiten, 1826.
3. Bohn: Jahrb. f. Kinderh., 1868.
4. Rev. mens. d. mal. de l'enfance, v, 521.
5. Leighton: Brit. Med. Jour., June 27, 1908.
6. Variot: Gaz. d. Hôp., Paris, 1906, p. 951.
7. Marfan: Semaine méd., 1894, p. 138.

face usually remaining free. This has been called milk-scab. Later in the course of the disease the eruption may spread to the hands and forearms, although, as a rule, the trunk and extremities are not affected. If the condition remains untreated or does not yield to treatment, the body, neck, arms and legs may be covered with a weeping, crusty eczema, while an intertriginous eruption covers the genitocrural folds. Dry fatty scales are usually found on the surface. Itching, as a rule, does not occur. This variety usually occurs in babies who have been fed artificially with large quantities of milk, eggs and meat broths. This form of the disease is most often of the seborrheic type, and, while the treatment is difficult, spontaneous recovery may occur at the end of the first year, when the quantity of milk is reduced.

The second form is described by Marfan under the name of disseminated, dry eczema. It occurs most frequently in artificially fed babies, and the history obtained is usually that of an overfed infant, who is thin and delicate, and who is suffering from chronic intestinal and nutritive disturbances, manifested by diarrhea, alternating with constipation, abdominal distention and loss of weight. The appearance of the skin is even worse than in the first form. There are dry, scaly, infiltrated islands of crusts with papular and pustular lesions, and sometimes moist areas. The face is usually most involved, the scalp only slightly. The eruption progresses slowly. The itching is very refractory to treatment. It has been suggested that this is the gouty form.

In some cases the first and second types merge into each other so much that no fixed or definite line can be drawn between the two varieties.

Among the complications of infantile eczema may be mentioned albuminuria, with or without kidney disease and heart involvement. Re[8] found albuminuria in twelve out of twenty-one cases, but these patients were also suffering from enteritis. The albuminuria and the heart complications are undoubtedly due to absorption of poisonous products, and many writers have urged the necessity of paying more attention to the heart and kidneys of children suffering from eczema. These children may also show symptoms of heart weakness or even collapse without fatal issue. In one case in which a postmortem examination was made, a very large thymus was present with a distinctly degenerated myocardium.

The clinical course of the disease rarely shows any sign of impending death, and a postmortem examination often fails to reveal the cause of death. There are those who believe that the status lymphaticus may explain this condition, though others oppose this view. The opinion has been expressed that sudden death may be due to a myocardial degeneration.

Castenholz attributed death to interference with cutaneous respiration. Others hold that death is caused by infection. Strauss maintains that eczema has nothing to do with the death, and that the infant dies from some other cause than the skin eruption. Heubner and Feer found in their autopsies on babies having eczema all the signs described by Paltauf as characteristic of the status lymphaticus.

As regards the etiologic relationship existing between eczema and asthma, several striking instances in confirmation of such a view have been noted.

8. Re: Pediatria, September, 1909.

TREATMENT

The treatment of this condition resolves itself into local and constitutional measures, mainly the latter. The dermatologists who direct local treatment advise, in addition to the dietetic treatment, that the crusts be removed by softening with liquid petrolatum. In the eczemas of the scalp the removal must be gradual to prevent fever and other serious results. The aluminium acetate used as a poultice in most eczemas acts well in the removal of the crust. After the crusts have been removed the use of the following paste is advised, this being covered with a well-fitting mask:

R	gm. or c.c.		
Zinci oxidi	27		ʒvii
Adipis lanæ hydrosi	4	or	ʒi
Liquoris calcis	30		fl.ʒi
Olei amygdalæ expressi	4		fl.ʒi

M. et Sig.: Apply as directed.

In the milder cases a powder of zinc oxid, 30 per cent., and talcum, 70 per cent., acts well. Scratching is prevented by putting the arms in light splints. In the obstinate cases in which these measures do not seem sufficient, ointments of naphthalene (5 to 10 per cent.) for the itching, or sulphur (2 to 5 per cent.) in the seborrheic form, or salicylic acid (0.5 to 2 per cent.) in the dry disseminated type, may be employed.

When the moisture is no longer present, zinc oxid and olive-oil, equal parts of each, is often indicated. In the stubborn dry cases some tar ointment is often of service, as 0.1 to 1 per cent. oleum rusci or oleum cadini or a weakened tar oil, as unguentum picis of the National Formulary.

I have frequently found that the dry form yields to the application of simple cerate, which is dusted over with talcum or rice powder. Sulphur baths are sometimes useful and a short course of treatment with Fowler's solution in the refractory cases and wine of colchicum in the gouty cases yields good results. Where constipation is a marked feature of the case I have frequently found laxative waters of value; in other cases, especially those of older children, the compound infusion of senna has relieved the constitutional symptoms and diminished the local irritation.

The constitutional treatment consists in the main in the regulation of the diet, although measures looking toward relieving any intestinal disturbances must not be overlooked nor underestimated. Dietetic treatment is usually sufficient to cure a beginning eczema and to prevent the occurrence of complications. Some clinicians restrict the amount of nourishment given, besides modifying its composition. The fact that the disease occurs in infants who are breast-fed as well as in those who are fed artificially, emphasizes the necessity of specific treatment of individual cases. Good results have been reported from the employment of what has come to be known as Finklestein's soup. Finklestein thought that this form of eczema was due to milk salts, regardless of fat or protein. Therefore, he coagulated the milk with pegnin, added one-fifth of the whey to the coagulum, and oatmeal water to make the original quantity. Cane sugar was added in varying quantites. A number of clinicians have employed the method, some with good success, while others met only failure. My personal experience has not been such as to warrant me to recommend this treatment.

Good results have also been obtained from the use of skimmed milk, buttermilk, gruel and predigested milk. Whey has yielded remarkably good results in some cases.

On the whole, it may be said that a milk-poor, restricted diet with addition of cereal, the exclusion of eggs and meat broths, as a rule, yields good results in a short period of time. Older infants should also be given fruits and vegetables.

Langstein reports a case in which the Finklestein treatment failed absolutely. The patient finally recovered after the internal administration of large quantities of salt. Czerny emphasizes the necessity of treating any underlying hereditary factor which may have been operative in the production of the disease. The administration of thyroid extract has done well in some cases.

100 State Street.

ABSTRACT OF DISCUSSION

DR. D. E. ENGLISH, Summit, N. J.: In making ointments I use unhydrated lanolin and soften it with lard oil, and in that way use only the animal fats.

THE SERUM TREATMENT OF EPIDEMIC MENINGITIS *

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The bacteriology of meningitis is most varied and the cases may be divided into two groups, the tuberculous and the non-tuberculous. The tuberculous cases are due to invasion of the meninges by the bacillus of tuberculosis, the non-tuberculous to invasion by a great variety of organisms. The great majority of the latter group consist of those cases due to the *Diplococcus intracellularis* of Weichselbaum, 80 per cent. of non-tuberculous cases being due to this organism. It is familiarly known as epidemic meningitis. For the treatment of this particular form of meningitis we have now had for about two years a specific serum evolved by Simon Flexner. It is with this type of meningitis, and this alone, that this paper deals. It is with this type of meningitis, and this alone, that the Flexner serum is effective. It is useless in all other forms. This statement seems necessary in view of the requests which have been made of me to use the serum in tuberculous meningitis, in non-tuberculous meningitis due to the pneumococcus, to the streptococcus, in head injuries, and in meningitis occurring in the course of the various infectious diseases and secondary to intestinal infections. The specific nature of the serum must be borne distinctly in mind. It will do no more good in a pneumococcic or streptococcic meningitis than will diphtheria antitoxin in a pneumococcic or streptococcic tonsillitis.

The development of the serum is interesting. Flexner, studying the New York epidemic of meningitis in 1894, sought to influence favorably the course of the disease produced experimentally in animals by antiserums prepared in several kinds of animals from *Diplococcus intracellularis*. His first reports showed that the course of the disease in guinea-pigs and monkeys could be modified favorably and animals saved from the fatal effects of the diplococcus.

Subsequently Flexner and Jobling developed a diplococcus antiserum, prepared from the horse, which has now been used for about two years in the treatment of epidemic meningitis in man. They have collected up to date reports of about 600 cases, and the results in these cases justify the opinion expressed by them in an earlier publication: "It is our belief that the analyses of histories of cases of epidemic meningitis which have been presented furnish convincing proof that the antimeningitic serum, when used by the subdural method of injection in suitable doses and at proper intervals, is capable of reducing the period of illness; of preventing, in a large measure, the chronic lesions and types of the infection; of bringing about complete restoration to health in all but a small number of cases, the recovered, thus lessening the serious, deforming and permanent consequences of meningitis, and of greatly diminishing the fatalities of the disease." Their cases, taken as a whole, show a mortality of 25 per cent; in a few serious cases, in which treatment was begun within the first three or four days, the mortality was 11 per cent. Furthermore, among the 75 per cent. of recoveries, there were few of the serious sequelæ generally noticed after this infection. Hitherto the mortality in epidemic meningitis has ranged from 75 per cent. to 80 per cent., and among the patients who survived the persistence of serious sequelæ has been so great that their survival has been considered unfortunate. In other words, treatment of this infection by the Flexner serum has reversed the proportion of deaths and recoveries.

I have had the opportunity of watching the effect of the serum in 41 cases of meningitis, 29 of which have been proved to be of the meningococcic type. In these 29 proved cases, 16 patients have recovered and 13 have died, a mortality of 44 per cent. Closer analysis of the series shows that of 16 patients receiving the serum within the first week, 6, or 37 per cent., died. Of these 6 cases, 3 were fulminating and the patients died within the first two days; the fourth was a bartender aged 43 and the other 2 were not closely followed up, but each received only one dose of the serum.

This series of cases represents only one of many series, reports from all of which are sent to Flexner, for analysis by him, from time to time. His figures therefore are a better average test of the serum than are my smaller ones. It will be noted that the average mortality in my series is much higher than in the grand total of all series. I attribute this higher mortality in my series to the fact that many of the patients were treated in their own homes, at widely separated points in three different states; hence the difficulty of following them closely and giving repeated doses of the serum. On the other hand, those patients treated directly under the eye, in hospital, as a rule have done better than those treated at home. It is the latter group which have raised the mortality rate. I have therefore come to the conclusion that it is extremely desirable to send meningitis patients to the hospital; they can be watched more closely, the serum can be given more persistently and thoroughly; furthermore, more exhaustive and extensive laboratory investigations, as to blood, spinal fluid, etc., can be carried out in hospitals; the advisability of these investigations is especially great in these early days of the serum, when more accurate knowledge as to its exact action is desired.

Cases studied in detail show several interesting phenomena which have to do with the mortality rate, the method of termination, the general course of the disease and the effect of the serum on the spinal fluid.

The most striking thing, of course, is the high percentage of perfect recoveries, i. e., recoveries without serious sequelæ, and an especially low rate of mortality

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among those patients treated early in the disease, this mortality rate being as low as 10 per cent. in some series of patients treated within the first three or four days. Then the abrupt termination of the disease by crisis, in certain cases, has been most striking. Thus in 273 cases of recovery, Flexner and Jobling report 25 per cent. as terminating in this way.

EFFECT ON THE COURSE OF THE DISEASE

The course of the disease is materially shortened by the serum and a turn for the better is often noticed soon after the first injection; the mentality is clearer, there is less headache and general pain, the temperature is lower and the general condition of the patient seems improved. The rigidities, however, are apt to persist, e. g., the stiffness of the neck, Kernig's sign, etc. It is a remarkable sight to see in the children's ward, for instance, a patient twelve to eighteen hours after an injection, lying with head thrown back, perfectly comfortable and rational, or perhaps even playing with his toys—the same patient who previous to his injection was tossing about in delirium, with headache, high temperature and all the signs of a severe infection.

EFFECT ON THE SPINAL FLUID

effect of the serum on the spinal fluid is most interesting and is perhaps more demonstrable in this direction than in any other. The first puncture usually shows a fluid turbid in varying degree; smears from this fluid stained by the Gram method show a variable number of leucocytes, chiefly of the polymorphonuclear variety, and numerous Gram-negative diplococci, some intracellular, but more extracellular. Cultures on different media show an active growth, examination of which confirms the observation of the smears, i. e., a Gram-negative diplococcus. The first injection of serum is now given. Eighteen or twenty-four hours later the second puncture shows a fluid still turbid, more or less so than the first according to the progress of the case and *pari passu* an increased or diminished number of leucocytes, still of the polymorphonuclear variety. But bacteriologically we already see a change: there are more of the diplococci within the cells and fewer without than there were at the first puncture, i. e., phagocytosis has been going on to a considerable extent; at this time the number of cocci extracellular may exceed those intracellular, but with the progress of the case, whether favorable or unfavorable, the extracellular organisms gradually disappear entirely, the number within the cells at first increasing and later diminishing until they too disappear. The more rapid the progress of the case toward recovery, the more rapid the phagocytosis and the total disappearance of the organisms from the spinal fluid. The more protracted the case, the more persistent are the organisms; especially is this so in cases coming late under treatment.

The cultural character of the organisms changes with the progress of the disease; at first profuse, abundant growths are noticed on the media; gradually, however, they grow more slowly, less abundantly, less characteristically, and finally cease to grow. After they cease to grow on cultures, however, they may still be detected in smears; they are present, but apparently dying and too weak to take root and grow; in a short time they disappear from the smears also, of course.

THE CELLULAR ELEMENTS

The behavior of the cellular elements of the spinal fluid is also interesting. At the first puncture the leucocytes are numerous, remarkably so in some cases, and invariably of the polymorphonuclear type, 90 to 95 per cent. usually.. If the case progress favorably the total number diminishes; they lose their characteristic morphology and staining qualities; the proportion of mononuclears is very apt to increase; indeed, in a few long-drawn-out cases the mononuclears have formed a large percentage of the cells.

TECHNIC

The method of giving the serum is important and I now describe it in detail.

All the active workers with the Flexner serum are of the opinion that, in order to get the best results, the serum must be brought closely in contact with the pathologic seat of the disease and that this can be done only by a lumbar puncture. It is useless to give it subcutaneously. After study of my own cases and those of other observers I have come to the following conclusions as to the method of using the serum:

In all cases which clinically resemble meningitis we must do a lumbar puncture; for this purpose we may use the needle of either a large antitoxin syringe or of a large aspirator, holding at least 30 c.c., the minimum dose to be given. Both patient and apparatus, of course, are to be surgically clean. The serum should be ready for injection. The puncture is to be made according to the usual rules laid down in text-books, i. e., in the third or fourth lumbar space, close to the spine, this point being determined by the imaginary line running from crest to crest of the ilia. The needle once in the spinal canal, the fluid begins to flow out; rarely is there any obstruction from clogging of the needle; if so it should be cleared with the obturator. The pressure of the fluid should be noted if possible with the sphygmomanometer or roughly by counting the number of drops per minute; its turbidity and color should also be noted

Collect a few drops of the fluid on clean glass slides for immediate staining and microscopic examination. Also inoculate several test-tubes of culture media by allowing the fluid to trickle directly over the media; finally collect the remaining fluid in a sterile test-tube for counting the contained leucocytes and centrifuging for further examination. Evacuate in all 30 to 45 c.c., if possible. If it be the least bit cloudy or turbid inject the serum at once, without waiting to learn the result of even the smears, injecting as follows: To the needle still in the spinal canal attach the syringe previously filled with the serum (warmed to about the body temperature). Inject slowly, using only gentle pressure in forcing down the piston, give 30 to 45 c.c., except in small babies in whom a smaller amount may be used. Thirty c.c. may be given even if the amount of spinal fluid removed is less than this. It is desirable, though not necessary, to remove spinal fluid equal in amount to the serum to be given.

EXAMINATION OF THE SPINAL FLUID

The spinal fluid should be examined immediately. The glass smears are stained by the Gram method and examined for both cellular elements and organisms; care should be taken to note the relative number of diplococci within and without the leucocytes. Fortunately the smears are fully as reliable as the cultures; hence we do not have to wait long for an exact diagnosis. The cultures should, of course, be incubated and examined later. The total number of leucocytes in the spinal fluid should be counted by the Thoma-Zeiss apparatus as soon after evacuation as possible.

REPETITION OF THE SERUM

If the bacteriologic examination show the presence of the diplococcus subsequent injections of the serum should be given. In the earlier days of the serum it was customary to wait, if improvement followed the first injection, until unfavorable symptoms developed, e. g., increased temperature, great restlessness, pain, headache, etc., and then give the second dose. Subsequent observations, however, especially by Dunn, have shown that better results are attained by giving the serum daily for three or four successive days, regardless of the clinical and bacteriologic progress of the case. The serum can do no harm, and this concentrated method of giving it is undoubtedly better than waiting for symptoms to arise and then hitting them. In severe and fulminating cases the second dose should be given in from twelve to eighteen hours after the first, and 45 c.c. should be given. In several instances I have used this amount of serum without bad results, even though less than this amount of fluid had been removed.

Having thus given our first series of three or four doses on successive days, we may pause and note results; as a rule, improvement will be seen both clinically and bacteriologically, and no further injections will be necessary, at least in patients coming early under treatment. But if after an interval of a day or two untoward symptoms still persist another series of doses should be given daily, perhaps for two days, perhaps for four days, then another pause be observed. This process of alternate giving and withholding of injections may be continued until meningeal symptoms have ceased or bacteria have entirely disappeared from the spinal fluid, or the chronic stage has been established. As a rule, it will be found that the diplococci disappear comparatively early, and that we may then cease our injections. If the serum is to be effective it will be so early in the disease after a few doses. If, however, the organisms persist in the spinal fluid for a long time occasional doses should be given. In all cases, whether those of complete recovery or those running on into the chronic stage, lumbar puncture should be done from time to time until no organisms are found either in smears or cultures. We must leave our patient with a sterile spinal fluid.

Relapses should be treated as fresh cases. Certain complications, if due directly to the meningococcus, may be an indication for the local use of the serum. Thus in one of my series a severe arthritis of the knee, proved by bacteriologic examination of the aspirated fluid to be due to the meningococcus, received three doses of 15 c.c. each, given directly into the joint, with immediate relief to the pain and apparent permanent improvement. Cushing has reported a similar case.

The following brief histories illustrate some of the points mentioned in this paper.

CASE 1.—This illustrates the disadvantage of coming late under treatment and the futility of giving small doses, scattered and in part subcutaneously. The patient, a nine-year-old boy, left the hospital apparently well, on the thirty-eighth day, but returned in three weeks with meningeal symptoms, from which he finally died five weeks later, the spinal fluid during this second stay in the hospital being sterile.

Chart 1 shows the temperature curve and method of dosage. It is a good illustration of how *not* to give the serum.

CASE 2.—George D., aged 3, entered my service at Cook County Hospital, April 13, 1909, on the fifth day of illness.

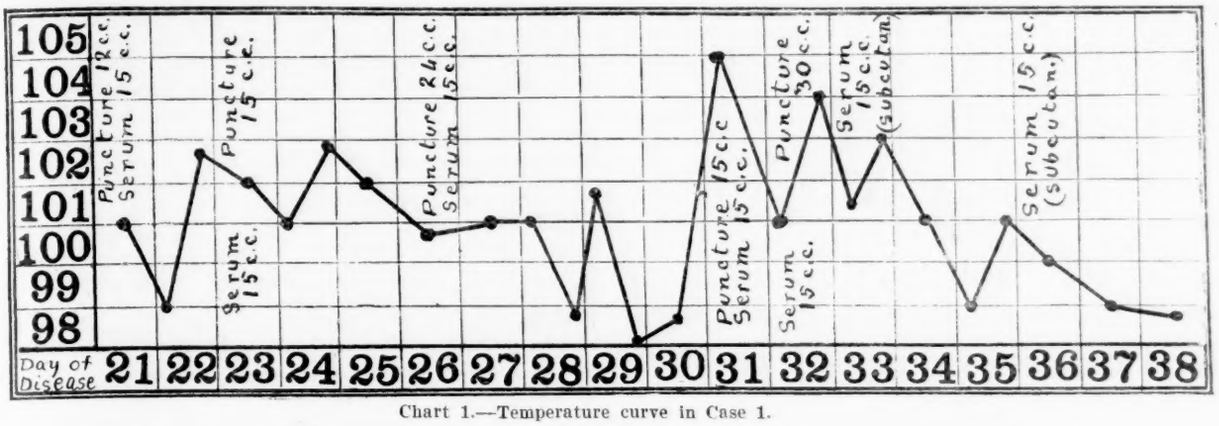

Chart 1.—Temperature curve in Case 1.

He was given 30 c.c. of serum on each of the two following days, then through a mistake, none on the next two days, with consequent increase of symptoms, was then given 30 c.c. on each of the following four days, the last on the thirteenth day of the disease, with satisfactory results. The spinal fluid was sterile at the last puncture. The case illustrates the danger of ceasing injections too early and the value of sufficiently prolonged daily doses.

CASE 3.—A seven-year-old girl received her first injection on the second day. The case terminated by crisis after only two doses of the serum. Chart 3 tells the story graphically.

CASE 4.—In the case of Nately C., aged 15, the serum was not used persistently enough, and consequently we see a long-drawn-out case, though the patient finally recovered after individual, isolated doses at long intervals. The serum was given on the ninth, tenth, fourteenth, seventeenth, twenty-fourth, twenty-sixth and thirty-sixth days, respectively, the spinal fluid on the last date being sterile. The case also illustrates the value of perseverance in the use of the serum, even late into the disease. The patient was discharged from the hospital on the forty-third day.

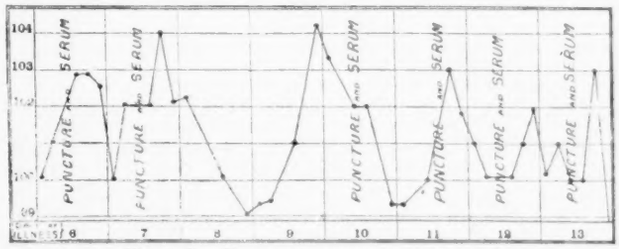

Chart 2.—Temperature curve in Case 2.

CASE 5.—This case, from the service of Drs. Poorman and Ellis Kerr, at the Oak Park Hospital, was a severe fulminating case. The patient, Amelia D., was given her first injection twenty-three hours after the onset, with marked improvement in the general condition, temperature and spinal fluid. The injection was repeated on the second day, omitted on the third with increase in symptoms, given on the fourth and fifth days.

with diminution of the meningeal symptoms, but continued high temperature due to arthritis of the right knee joint. Fluid aspirated from this joint showed the meningococcus; serum, 15 c.c., was therefore injected directly into the joint on the ninth, tenth and eleventh days respectively, with much relief to the pain. Serum, 30 c.c., was also injected into the spinal canal on the seventh and ninth days, respectively, the fluid from the last puncture being sterile. A further complication, apparently an osteomyelitis of the right femur, prolonged the convalescence, but this also eventually disappeared and the patient has now, June 9, had a normal temperature for two weeks and is steadily improving.

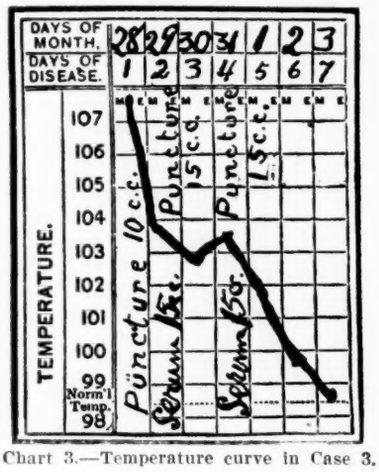

Chart 3.—Temperature curve in Case 3.

The actual disease itself, the meningitis, in this case, was evidently checked by the first two doses of the serum, as was demonstrated, not only by the diminution in the meningeal symptoms, but also by improvement in the character of the spinal fluid. The termination of the disease itself was by crisis; indeed, it might almost be said that it aborted, so sudden and remarkable was the drop in the temperature. The prolonged character of

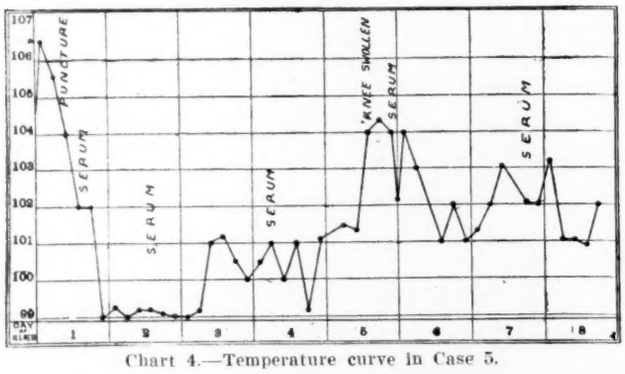

Chart 4.—Temperature curve in Case 5.

the case was due to the complications, over which the serum had no apparent control, aside from the relief of joint pain when locally applied.

SUMMARY

The main points in this paper may be briefly summarized as follows:

1. In all cases clinically suggesting meningitis, do a lumbar puncture as early as possible.

2. If the fluid thus obtained be turbid, immediately inject at least 30 c.c. of Flexner serum directly into the spinal canal without waiting to hear the bacteriologic report of the fluid.

3. Examine the spinal fluid bacteriologically. Smears are more important than cultures. If the *Diplococcus intracellularis* be found, repeat the injections daily for the three or four following days; in severe cases give the second dose twelve hours after the first.

4. After the first series of doses, wait two or three days, and if necessary, repeat the series.

5. The serum is a specific and of value in meningococcic meningitis only.

6. It is useless to give the serum subcutaneously.

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ABSTRACT OF DISCUSSION

DR. CHARLES HUNTER DUNN, Boston: The mortality of this disease at the Children's Hospital in Boston for the past ten years may be interesting. The average number treated was twenty, *i. e.*, cases in which lumbar puncture confirmed the diagnosis of infection with the diplococcus intracellularis. Up to 1902 there was no particular treatment. In 1903-04-05 the condition was treated by repeated lumbar puncture. In 1906 we gave the diphtheria serum a trial, and in 1907 used a vaccine prepared from the diplococcus intracellularis. It was from November, 1907, to November, 1908, that the Flexner serum was first used. During the preceding nine years the mortality had varied from 60 to 80 per cent.—in fact, the mortality was not affected by the treatment. During the last year the mortality dropped to 19 per cent. Dr. Churchill was right in saying that I gave 45 c.c. of serum without getting any spinal fluid. Twice I have seen serious symptoms of collapse in babies from a large dose of the serum without withdrawal of a sufficient amount of fluid.

There are three classes of these fatal cases; first, the fulminating cases, in which the babies die before the serum has time to get in its work; second, the late cases in which so much damage had been done before the serum was given that the patient dies from the injury already inflicted on the nervous system. The third are the resistant cases. There is a type of case in which the organism disappears entirely yet there is no abatement of the symptoms. It has been thought by Flexner that this is due to a complete closure of the canal, as in some of these cases at autopsy there was found within the ventricles an enormous number of organisms. But there are cases in which the serum has practically no effect on the fluid or the symptoms. Recently we had two cases in which no effect at all appeared. I think possibly one explanation of that type of case is that it may be due to a variety of the *Diplococcus intracellularis* that is particularly resistant. Dr. Flexner wants any one who comes across such a case to send him a strain of the organism that he may inject his horses with it and get an effective serum for treatment.

DR. ALFRED HAND, Philadelphia: In the Children's Hospital in Philadelphia we have had but one case of the epidemic form treated with the serum, and this case worked very well. The first day we obtained 45 c.c. of fluid and got the *Diplococcus intracellularis*. On the second day I withdrew 45 c.c. of fluid and injected 30 c.c. of the serum. On the third day I did the same. On the fourth day I could get but 15 c.c. of the fluid and the child was greatly improved. I thought that I was justified in putting in 30 c.c. again and I did so with very little pressure. A couple of hours afterward the child was seized with a violent headache and was screaming with pain, but morphin relieved it, and in five days the child was perfectly well. I have seen cases run on for eleven, twelve, or thirteen months and then the child would die, one occasionally getting well. This case just mentioned was the first case in which we felt that the treatment had had some effect in curing the patient. I felt that there was no harm done by injecting a larger amount of serum.

DR. FRANK ALLEN, Chicago: I have had several cases of cerebrospinal meningitis treated with Flexner's serum. My experience has been much like that of Dr. Churchill. Often lumbar puncture alone would cause the temperature to drop, but without the injection of the serum it would rise again. With the injection of three or four doses of serum the temperature would drop and remain down. In one case in which I could not find the organism the patient died before I could make an injection. Another patient had all the symptoms of pneumonia. On the third day this patient developed cere-

bral symptoms, puncture showed the diplococcus; the serum was used with almost immediate improvement. In this case we had difficulty in getting out enough fluid. We used 15 c.c., and at one time 30 c.c., without any trouble. The spinal fluid cleared up and no diplococci could be found, but the pneumonia continued and the patient was in the hospital for three weeks with pneumonia, without recurrence of spinal symptoms. In most of the cases the temperature rapidly dropped after treatment.

DR. WILLIAM M. WELCH, Philadelphia: I have seen Flexner's serum used in a large number of cases of cerebrospinal meningitis in our Municipal Hospital and I regret very much that I have no exact data at hand to show the results. The members of the hospital staff feel sure that the death rate has been considerably reduced by the serum treatment. We have found that it is more useful in the true form of the disease, in which the *Diplococcus intracellularis* is present. But I rise more particularly to speak of an unfortunate result in one instance. The patient was a negro, who was admitted to the hospital with well-marked symptoms of cerebrospinal meningitis. Lumbar puncture was done, but no fluid flowed out. The direction of the needle was changed once or twice, but still no fluid was obtained. It was determined, however, to inject the serum. The patient was sitting in the upright position with his arms and chest resting on the foot of the bed; 15 c.c. were injected without any symptoms, but before the entire contents of the second bottle of 15 c.c. had been used the man complained of severe pain in his head; his head dropped forward and he became unconscious. The respirations were very slow, not more than eight or ten a minute. The breathing was stertorous. The patient never regained consciousness, and died within fifteen or twenty minutes. I should conclude from this experience that it is dangerous to introduce into the spinal canal any considerable amount of the serum without first withdrawing a similar amount of the spinal fluid.

DR. GEORGE D. SCOTT, New York: It is important to lay particular stress on the fact that the *Diplococcus intracellularis* should be found before the employment of the serum. In the epidemic in New York City some time ago I saw a number of cases in the hospital and in private practice and it was a question often of an absolute diagnosis from lumbar puncture alone. In many cases a wrong diagnosis had been made, sometimes due to the fact that the bacteriologist was not so well informed as he might have been. I find that it is better to inject a small amount of serum more often and not to allow too much of the spinal fluid to escape at each injection. Bearing those points in mind, we can get more benefit from the serum as Dr. Flexner has stated.

DR. F. S. CHURCHILL: I have had the same experience of injecting more serum than we have removed fluid. I would emphasize what Dr. Scott says that it is of the utmost importance to remember that the serum is a specific. I think I must have been misunderstood by one of the gentlemen. I did not say that the serum was of *more* value in the epidemic form. It is of no value whatever in any other form of the disease. It is a specific for epidemic cerebrospinal meningitis and that fact must be borne in mind. In regard to the unfortunate termination of the case reported from Philadelphia I do not know whether the fact that the patient was sitting up had anything to do with it, but I never have given it to a patient sitting up. In one case of a baby, two years old, where I had employed two successive doses, I used an anesthetic at the third injection. It was a mild case and the baby was pretty thoroughly conscious. I removed the fluid, injected the serum, withdrew my needle and the child seemed all right. But suddenly the breathing stopped and, though we worked with her nearly an hour, she died. In that case the fluid was almost sterile at the last examination. I think I should use gas another time instead of any other anesthetic. We must remember that the serum must be given as early as possible, it must be given in the spinal canal and it must be repeated until the organisms are not found in the spinal fluid.

Practice of Medicine.—The everyday internist can and must be able to practice medicine scientifically. The most important aid to this end is a clinical laboratory properly equipped.—O. I. Halbert, in *Texas State Journal of Medicine.*

HEMOLYSIS OF HUMAN AND RABBIT ERYTHROCYTES BY CROTALUS VENOM *

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PHILADELPHIA

The first studies of the hemolytic action of serpents' venoms seem to have been made by Stevens and Myers,[1] who found that when cobra venom was added to shed blood, *in vitro,* destruction of the corpuscles (hemolysis) and retardation of coagulation took place. They also found the hemolytic power of the venom inhibited by antivenomous serum.

Myers[2] later studied the hemolytic substance—"cobralysine"—of the venom and found it destroyed by heat. During these studies he found that the susceptibility of the erythrocytes to cobralysine *in vitro* bore no relation to the susceptibilty of the animal to subcutaneous intoxication by venom.

Stephens[3] found that the hemolytic constituents of different venoms were not identical.

Myers[4] made further studies of venom hemolysins and serum antihemolysins.

Mitchell and Flexner[5] and Flexner and Noguchi[6] have further studied the phenomena of agglutination, hemolysis, leucolysis, and the germicidal activity of the blood serum. They found that the phenomena of agglutination appeared rapidly in favorable solutions, while in weak solutions a delay of some minutes up to an hour might be noted. Active agglutination took place in 0.2 per cent. solutions, while weaker ones either produce no change at all or show imperfect fusion. They studied corpuscles of the dog, rabbit, guinea-pig, sheep, ox, pig, necturus and frog. The phenomena of hemolysis were found to be complicated. Solutions of 0.2 per cent. were found most favorable for bringing out the hemolytic property, though the different venoms differed considerably, cobra venom being most active, water moccasin, copperhead and rattlesnake venoms less so in the order named. They also found that the corpuscles of different animals differed in their susceptibility to the action of the venom, those of the dog's blood being most easily affected, those of ox blood least so. The intermediate animals in order of susceptibility were sheep, guinea-pig, pig and rabbit. Solutions of 5 per cent. were needed to hemolyze the corpuscles of the ox. Heating to from 75 to 80 degrees C. for 30 minutes does not diminish the hemolytic action of any venom; heating to from 90 to 96 degrees diminishes the activity of rattlesnake venom; heating to 100 degrees C. for fifteen minutes diminishes the hemolytic activity of cobra, moccasin and copperhead venom a little. They believe that venoms contain various intermediate bodies, not all of these being absorbed by any one kind of corpuscles. Venom leucolysis was carefully studied and it was found that venoms contain principles that are agglutinating and dissolving for the white corpuscles of which the agglutinating principle may be identical with those for the erythrocytes. The leucolytic principle is distinct from the hemolytic principle. The several varieties of white cells show different susceptibilities to the action of the venom.

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* Read in the Section on Pathology and Physiology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Brit. Med. Jour., Mar. 5, 1898, p. 621.
2. Jour. of Path. and Bact., 1899-1900, p. 415.
3. Jour. of Path. and Bact., 1899-1900, p. 273.
4. Trans. of the Path. Soc., London, Feb. 6, 1900.
5. National Academy of Sciences, 1901.
6. Jour. Exper. Med., March, 1902, vi, 3, p. 277.

Flexner and Noguchi[7] found that venoms have a cytolytic action on many kinds of cells, probably because of a pleurality of the amboceptors they contain.

Kyes[8] finds that the hemolysis by venom bears a definite relation to the lecithin content of the blood, by which the venom amboceptor is activated.

Noguchi[6] found that the hemolytic principle of venom extended over a wider group of animals than the agglutinative principle, its activity on the bloods of different animals diminishing the more widely the vertebrata were departed from. Cobra venom contains the largest, crotalus venom the smallest number of hemolytic units, while moccasin venom contains the greatest number of agglutinative units for such bloods. The mechanism of hemolysis is identical with that for the bloods of warm-blooded animals; complements are, therefore, present in all vertebrates and in many, at least, of the invertebrates. The heat liability of the venom agglutinins and hemolysins for cold-blooded animals agrees closely with that for warm-blooded animals.

The hemolytic activity of the venoms of the Indian and Australian snakes, and the effects of the antivenomous serums, have been made the subjects of several papers by Lamb.[9]

Throughout the writings to which reference has been made either no mention, or very brief mention is made of the effect of the venoms, and particularly of the rattlesnake venom on human corpuscles. As the rattlesnake is the most common venomous snake of this country, it seemed to us that the effects of its venom on the blood of its most important, though fortunately infrequent victim, man, ought to be investigated, and we set to work accordingly. As in the course of our studies certain facts were brought out confirming or refuting the work of those that preceded us, we feel justified in publishing what we found.

In a previous paper[10] we reported studies made about the same time on the agglutinating effect of crotalus venom on human and rabbit erythrocytes.

The venom used in both series of experiments was obtained for us from the *Crotalus adamanteus* through a special collector in Texas. According to the directions given him, the freshly collected venom was spread out in a thin layer on the surface of clean dinner-plates and dried in the sun. In this way a considerable quantity of excellent dry venom was secured. When the venom was to be employed for making the hemolytic tests, the dry product was finely pulverized, dissolved in the least possible quantity of 0.85 per cent. sodium chlorid solution, filtered through fine filter paper and the filtrate evaporated. The resulting scales were again pulverized, placed in a sterile test tube, covered with chloroform and stood in the thermostat until the chloroform had evaporated through the cotton plug with which the tube was stoppered. Experiments showed that the venom so treated was unmodified as regards hemolytic or agglutinative activity. It was from the powder so prepared that the solutions for hemolysis were made.

The blood was secured from the tip of a thoroughly cleansed finger, the same blood (W.'s) being used in all the tests. By making a deep puncture with a somewhat broad lancet, from one to three cubic centimeters could be secured. The blood was caught in a sterile test tube, immediately defibrinated, then centrifugalized. The serum was removed with a pipette to be used subsequently as serum complement, the corpuscles washed three times in sterile salt solution and finally made into a 5 per cent. suspension in 0.85 per cent. sodium chlorid solution.

In making the hemolytic tests, 1 c.c. of the corpuscular suspension was placed in each of a series of tubes suitable for use in the centrifuge, 0.5 c.c. of a mixture of one part of normal human serum (that removed with the pipette from the centrifuge tube as mentioned above) and two parts sterile saline solution and varying quantities of venom added. The mixture was shaken gently and enough saline solution added to bring up the volume to 2 c.c. The tubes were then stood in the thermostat at 37 degrees C. for one hour, when the first observation was made. They were then again gently shaken and placed in the icebox over night, after which the final observations were made by whirling the tubes for 5 minutes in the centrifuge and then examining the clear fluid for variations in the color tint.

In the tabulations we express the occurrence of hemolysis by the letter H, doubling or trebling the letters to express the degree. "H?" means doubtful hemolysis or a very faint trace. "HC" means complete hemolysis. We also exhibit the associated agglutination by the use of the letter A. The amount and character of the sediment is, in general, perhaps, a better index to the amount of hemolysis. In these experiments the sediments in tubes marked H were all the same, those in tubes marked HH were the same but different than those in tubes H or HHH, so that, whether the tints or sediments were used as indices, the results would be the same.

The quantity of venom has been expressed by some of those who experimented with the hemolytic reactions in the form of percentages, but, as these vary according to the final dilution of the mixture, and as after some experiments we were obliged to increase from a 2 c.c. to a 10 c.c. mixture, we believe it to be more accurate to express the quantity of venom in the form of grams of the dry venom in the final mixture.

TABLE 1.—TWO CUBIC CENTIMETER DILUTIONS

Grams dry venom of *Crotalus adamanteus* in total quantity of final mixture.	%		Normal human erythrocytes from defibrinated blood susp. in 0.85 % NaCl sol., (5% susp.)		Normal human serum diluted with 2 vols. normal NaCl solution.		Results.
0.001	(.05)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H
0.005	(.25)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H
0.01	(.5)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H
0.0125	(.625)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HH
0.03	(1.5)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HH
0.05	(2.5)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HHH
0.06	(3)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HHH
0.2	(10)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H

TABLE 2.—TWO CUBIC CENTIMETER DILUTIONS

0.01	(5)	plus	1 c.c.	plus	1.0 c.c.	equals	A plus O
0.04	(2)	plus	1 c.c.	plus	1.0 c.c.	equals	A plus H

Table 1 shows that increasing additions of venom result in increasing hemolysis until a certain point is reached. Beyond this point added venom diminishes the hemolytic activity, presumably because of excess of amboceptor units in the venom. Table 2 shows that the same disturbance results from excess of complementary units; when 1 c.c. of the serum dilution, instead of the 0.5 c.c. employed in Table 1, is used, hemolysis is greatly diminished. Thus in Table 1, 0.01, 0.03 and 0.05 grams of venom produce marked hemolysis, but in Table 2, 0.01 causes no hemolysis and 0.04 very slight hemolysis.

Whether these results depend on the Neisser-Wechsberg phenomenon seems to us to be problematical.

7. Univ. Penn. Bull., July-August, 1903.
8. Berl. klin. Wchnschr., 1903, xli, 21, 57, 82.
9. Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government in India, No. 16, 1904, and No. 17, 1905.
10. Read at the meeting of the American Association of Pathologists and Bacteriologists, Boston, April 9-10, 1909.

We soon found it impracticable to continue to work with 2 c.c. mixtures, because of the difficulty of dissolving the necessary quantity of venom in the small quantity of fluid used. We were, therefore, obliged to change to a 10 c.c. mixture. In this mixture we deal with the same number of corpuscles, the same quantity of serum and the same quantity of venom, though, of course, the percentage of venom is changed by the dilution. This made us abandon the percentage expression and make use of figures indicative of the actual weight of dry venom added to the mixture.

Table 3 shows the details of experiments made with the 10 c.c. mixture for comparison with those in Table 1 in which 2 c.c. mixtures were employed. It will be seen that the results are the same. This was to be expected, as the proportions were the same. The percentages of venom are, however, entirely different.

TABLE 3.—TEN CUBIC CENTIMETER DILUTIONS

Grams of dry venom of *Crotalus adamanteus* in total quantity of final mixture.			5% susp. of normal human erythrocytes from defibrinated blood. in 0.85% NaCl solution.		Normal human serum diluted with 2 vols. normal NaCl solution.		Results.
	%						
0.01	(0.1)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H
0.03	(0.3)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HH
0.05	(0.5)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HHH
0.07	(0.7)	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HHHH

TABLE 4.—TEN CUBIC CENTIMETER DILUTIONS

		Corpuscles from citrated blood.		Citrated plasma.		
0.01	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H
0.03	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H
0.05	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HH
0.07	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HHH

In our paper on the agglutination of the corpuscles, we have shown that it makes considerable difference in the rapidity with which the reaction takes place whether defibrinated or citrated blood is used to furnish the corpuscles.

In investigating this problem with reference to hemolysis we used the following technic:

The blood from the finger tip was permitted to flow into a sterile tube containing sterile sodium citrate solution (2 per cent. in 0.85 per cent. sodium chlorid solution). The fluids were well mixed, then centrifuged, the supernatant fluid removed with a pipette to be used in lieu of the serum ordinarily employed and the corpuscles washed three times as usual, then made into a 5 per cent. suspension.

One c.c. of the suspension was placed in each of a series of tubes, varying quantities of venom were added, and to each was added a quantity of the citrated plasma shown by calculation to be the equivalent of the 0.5 c.c. of the serum mixture ordinarily employed. Thus the conditions, after dilution to 10 c.c., were identical with the other experiments except that the corpuscles had been acted on by the sodium citrate and a small quantity of sodium citrate remained mixed with the plasma. The experiment in Table 4 shows that the hemolysis is slightly less when the citrated corpuscles are employed for the test. Thus the effect of the citrate is to diminish hemolysis and to retard agglutination, using defibrinated blood as a standard.

In order to compare our results with some known quantity, we next made a series of tests in which rabbits' corpuscles instead of human corpuscles were employed.

Table 5 shows the hemolytic effect of the crotalus venom on rabbit erythrocytes from defibrinated and citrated blood. As in the human blood, there is a diminution in the amount of hemolysis when the citrate is employed. It will also be observed that the defibrinated rabbit corpuscles are about ten times as sensitive to the hemolytic action of the venom as are the citrated corpuscles.

TABLE 5.—TEN CUBIC CENTIMETER DILUTIONS: RABBIT

Grams of dry venom of *Crotalus adamanteus* in total quantity of mixture.		5% susp. of norm. erythrocytes from defibrinated blood in 0.85% NaCl solution.		Normal rabbit serum diluted with 2 vols. of NaCl solution.		Results.
0.0000125	plus	1 c.c.	plus	0.5 c.c.	equals	O plus H
0.000125	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H
0.00125	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HH
0.0125	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HH
0.125	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HHHH
		RABBIT: 5% susp. of normal erythrocytes from citrated blood in 0.85% NaCl sol.				
0.0000125	plus	1 c.c.	plus	0.5 c.c.	equals	O plus O
0.000125	plus	1 c.c.	plus	0.5 c.c.	equals	O plus O
0.00125	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H
0.0125	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HH
0.125	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HH

Flexner and Noguchi found that when venom was heated to from 75 to 80 degrees C. the hemolytic properties were not affected. As no mention was made of the state in which the venom was heated, we decided to try whether the fact was true both of pulverized dry venom and of venom in solution.

To test the effect of heating it in the dry state, a small quantity was spread on the bottom of a small Erlenmeyer flask and floated on a water bath which was kept for 30 minutes between 75 and 80 degrees C. The powder was then dissolved and hemolytic tests made on both human and rabbit corpuscles. The results of the experiments are shown in Tables 6 and 7. When Table 6 is compared with Table 5, it becomes evident

TABLE 6.—VENOM POWDER HEATED DRY FOR 30 MINUTES AT 75° TO 80° C.

Grams of dry venom of *Crotalus adamanteus* in total quantity of final mixture.		5% susp. of rabbits' erythrocytes, from defibrinated blood in 0.85% NaCl solution.		Normal rabbit serum diluted with 2 vols. 0.85% NaCl solution.		Results.
0.002	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H(?)
0.01	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H
0.03	plus	1 c.c.	plus	0.5 c.c.	equals	A plus HH

TABLE 7.—VENOM POWDER HEATED DRY FOR 30 MINUTES AT 75° TO 80° C.

		5% susp. of normal human erythrocytes from defibrinated blood in 0.85% NaCl solution.				
0.002	plus	1 c.c.	plus	0.5 c.c.	equals	O plus H(?)
0.01	plus	1 c.c.	plus	0.5 c.c.	equals	O plus H (slight)
0.03	plus	1 c.c.	plus	0.5 c.c.	equals	A plus H (slight)

that heating the venom, even in the dry state, produces a marked diminution of the hemolytic activity, for in Table 5 hemolysis is distinct in 10 c.c. mixtures when only 0.0000125 grams of venom are added, though in Table 6 hemolysis begins only after 0.002 grams of the heated venom have been added. The same result was obtained with both defibrinated and citrated serums.

When human corpuscles were employed the effect of heating the venom was much less marked. Thus when Table 3 is compared with Table 7 it will be seen that the unheated venom produces hemolysis when quantities of 0.01 gram and upward are added, and becomes marked when 0.03 grams are reached, though when the

heated venom is added the hemolysis effected by 0.01 is very slight and with 0.03 is still very slight. Experiments made with citrated blood showed the same result.

It thus becomes apparent that there is a difference in the hemolytic activity of the heated and unheated venoms for rabbit and human corpuscles.

This led us to conjecture that the hemolytic factors for these different corpuscles might be different, but this we were unable to prove.

When the venom was first dissolved and then heated, the heating being accomplished in the same manner, by placing the solution in a small Erlenmeyer flask and floating it on a water bath kept for 30 minutes at between 75 and 80 degrees C., a much more pronounced destruction of the hemolytic power was brought about.

The results are shown in Table 8. When human corpuscles are exposed to unheated venom solutions, as shown in Table 1, hemolysis begins when 0.001 grams are added: when the venom solution is heated, when 0.002 grams are added. If, however, rabbit corpuscles are used, the results are entirely different, for when the unheated solution is employed, hemolysis begins (Table 5) at 0.0000125 grams, but when the solution is heated at 0.002 grams. Practically the same diminution of hemolysis takes place whether defibrinated or citrated blood is used.

TABLE 8.—VENOM SOLUTIONS HEATED FOR ONE-HALF HOUR AT 75° TO 80° C.

Grams of dry venom of *Crotalus adamanteus* in total quantity of final mixture.		5% susp. of normal human erythrocytes in 0.85% NaCl solution.		Normal human serum diluted with 2 vols. of saline solution.		Results.
0.00001	plus	1 c.c.	plus	0.5 c.c.	equals	O plus O
0.0005	plus	1 c.c.	plus	0.5 c.c.	equals	O plus O
0.001	plus	1 c.c.	plus	0.5 c.c.	equals	O plus O
0.002	plus	1 c.c.	plus	0.5 c.c.	equals	O plus H(?)
		5% susp. of normal rabbits' corpuscles from defibrinated blood in 0.85% NaCl solution.				
0.0002	plus	1 c.c.	plus	0.5 c.c.	equals	O plus H?
0.0005	plus	1 c.c.	plus	0.5 c.c.	equals	O plus H?
0.001	plus	1 c.c.	plus	0.5 c.c.	equals	O plus H?
0.0015	plus	1 c.c.	plus	0.5 c.c.	equals	O plus H

We observed an interesting change in the hemoglobin of the corpuscles not hemolyzed.

If the corpuscles from a tube containing venom and serum in quantities too small to effect hemolysis be collected by centrifugalization and suspended in fresh 0.85 per cent. sodium chlorid solution, the corpuscles remain unchanged. If again collected and again suspended in fresh saline solution, a change may or may not be seen; but if the operation be repeated a third time the corpuscles undergo immediate hemolysis in the salt solution.

In the course of some immunization experiments that turned out badly, we prepared a venom solution by dissolving the dry venom in 100 parts of 0.85 per cent. sodium chlorid solution and then saturating it with chloretone. This prevented bacterial contamination and the toxic properties of the venom were preserved for considerable time. On using this solution for a hemolytic test, we found complete hemolysis in 30 minutes when it was not expected. We then tried a saturated solution of chloretone in the normal salt solution, and found that the antiseptic itself caused rapid and complete hemolysis when in saturated solution. We were thus led to abandon the use of chloretone for preserving the venom solutions.

As human blood in quantities sufficient to furnish enough corpuscles for making hemolytic tests is not easily obtained, we were interested to determine how long the corpuscles, once suspended in the saline solution, might be available for use. Suspensions (5 per cent.) of both human and rabbit corpuscles were, therefore, prepared and kept in the icebox, being subjected to hemolytic tests from time to time. We found that during 24 hours there was very little change, but that after 36 hours hemolysis took place much more rapidly than before.

From this we came to the conclusion that the corpuscular suspensions should be prepared every day and not kept over, and the experiments we report were always made on freshly secured blood.

In order to study the effects of crotalus venom on the leucocytes, we made use of the sediments collected by centrifugating the tubes in which hemolysis had taken place. This was spread on slides and stained by the Romanowsky method. All these observations were, therefore, made on corpuscles that had been in contact with the venom in the icebox for 24 hours, and do not form very satisfactory data.

We found that the small lymphocytes stained well and appeared quite normal even in tubes to which as much as 0.07 grams of venom had been added.

Large lymphocytes were apparently unaffected by quantities of venom less than 0.03 grams per 10 c.c. of fluid. They were not found in tubes containing 0.03 grams and upward.

The polymorphonuclear neutrophiles showed the most marked changes, and are, therefore, probably the most susceptible to the cytolytic action of the venom. Even small quantities of the venom produced marked karyolysis with a hyaline change of the cytoplasm. This is an interesting observation which may have some bearing on the invasion of the tissues by bacteria which so quickly takes place after venom injection.

The eosinophiles seemed to resist the venom very well. In no case, even up to the addition of 0.07 grams to the 10 c.c. mixture, were they completely destroyed, though the nuclei refused to stain. The granules were never destroyed. No basophilic cells were found in any of the sediments.

CONCLUSIONS

1. Crotalus venom is capable of hemolyzing red corpuscles of both man and the rabbit in the presence of serum or of citrated plasma.

2. When an excess of the venom, or an excess of the serum is present, hemolysis diminishes.

3. In the properly proportioned mixtures, hemolysis takes place regardless of the extent to which the mixtures may be diluted by the addition of salt solution.

4. Defibrinated blood furnishes corpuscles more sensitive to the venom than citrated blood.

5. Heating dry venom diminishes its hemolytic activity for human corpuscles a little, for rabbit corpuscles a great deal.

6. Heating solutions of venom diminishes its activity for human corpuscles a little, for rabbit corpuscles a great deal.

7. Rabbit corpuscles are much more susceptible to the hemolytic effect of the venom than human corpuscles.

8. Corpuscles in suspension should not be kept from day to day for venom experiments.

9. The small lymphocytes and eosinophiles resist the venom better than the large lymphocytes and polymorphonuclear neutrophiles.

ABSTRACT OF DISCUSSION

DR. D. H. BERGEY, Philadelphia: Presumably, from the manner in which the experiments have been conducted, the hemolysis brought about by the venom is due to the presence in it of an amboceptor; and the addition of serum to the mixture of venom and blood supplies the complement. How do the authors of the paper explain the disappearance of hemolytic power, since we know that amboceptors are supposed to be thermostabile?

DR. E. C. L. MILLER, Detroit: Is there any especial explanation for the fact that venom acts in proportion to the absolute quantity present and not in proportion to the dilution, as it forms, in this respect, an exception to the ordinary rule?

DR. JOSEPH MCFARLAND, Philadelphia: When we found that it was necessary to change from a mixture containing only 2 c.c. to one containing 10 c.c., the question of the relation of proportion to quantity arose, and we discovered that, as shown by a comparison of tables, the increase in quantity had no effect at all on the action of the venom. Then I suggested that it would be interesting to try still higher dilutions, which we did; and we found no change in the behavior of mixtures of 250 c.c., the largest amount used, hemolysis taking place in this the same as in smaller quantities. I cannot answer Dr. Bergey's question quite so positively. Just what the loss of hemolytic power in the heated venom indicates, I do not know. It might indicate that the amboceptors were in a different class from the ordinary bacteriolytic or hemolytic amboceptors. I scarcely think, however, that this would be the case. I believe tnat it is true that heating disturbs all amboceptors somewhat and that the virulence is diminished in proportion to the amount of heat and the length of time in which the heating takes place.

DR. D. H. BERGEY: I believe that this is true, but do not think that it is true to the extent that it has been found in your experiments.

DR. MCFARLAND: The disturbance affected about half its virulence in this case.

SOME POINTS OF CONTACT BETWEEN NEUROLOGY AND ORTHOPEDIC SURGERY *

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It is the purpose of this paper to call attention to a few of the more recently understood conditions which produce symptoms for which either the neurologist or the orthopedic surgeon may be consulted and where frequently the methods peculiar to both specialties are of advantage in bringing about relief. It is not proposed to discuss the many problems in which the two specialties have been for long correlated, such as the treatment of the infantile or spastic paralyses, as there is little new to add to such subjects, even if the time were sufficient, and in those which are considered the time is so short that only a brief mention of them is possible. It is the hope, however, that the statements here made may serve as suggestions which will lead to a more thorough investigation of the conditions so that an even better understanding of their various phases may be obtained. The honor of being permitted to speak before such a body as this is fully appreciated, and it is my earnest hope that that which is presented may be of sufficient value to justify the amount of time allotted.

SPINAL LESIONS

In a considerable number of lesions of the spine, other than tuberculous, the inflammatory swelling or the osseous thickening which is a part of such diseases frequently causes pressure on or irritation of the nerve roots and results in symptoms referred to the portion of the body that the irritated nerve supplies. These symptoms may consist of pain, at other times areas of hyperesthesia or anesthesia, or even at other times true paralysis, the exact symptoms depending on the special nerve involved and the amount of pressure or irritation present.

Such a condition may result from the involvement of any region of the spine, but naturally in the regions of the greatest mobility, the cervical and lumbar, they will be most often met. The symptoms present in the given case must, therefore, depend very largely on the region of the spine involved. In the cervical region the symptoms will naturally be referred to the neck or arms or to the areas supplied by the cervical or brachial plexuses. In the dorsal region, aside from the symptoms present at the seat of the disease, the pain referred along the course of the intercostal nerves is the most common. In the lumbar region the referred pain may show in any part supplied by the lumbar and sacral plexuses, the low back or abdomen, the pelvis or perineum, or any part of the legs.

Whenever such spinal conditions exist the referred symptoms, those which most often lead to the consultation of the neurologist, are almost invariably either entirely on one side or at least much more marked on one side than on the other. With the dorsal or lumbar spinal lesions the unilateral manifestation is almost always the case, but in the cervical region, while one side is always worse, nevertheless both sides are usually somewhat involved.

The symptoms are always, if the disease is at all acute, aggravated by sudden movement of the affected part, such as in coughing or sneezing, slipping or any unguarded motion. With lesions in the lumbar or in the cervical spine the pain is commonly worse at night because of the opportunities offered for sag of these portions of the spine with the relaxation of the muscles, such as takes place during sleep.

Of the special diseases which may cause symptoms of this sort it is not possible in so short a time to do more than briefly to mention them, and the reader must refer to the various articles published elsewhere for further details. The most common, however, are the chronic infectious arthritis and the hypertrophic arthritis, but it should be remembered that any disease in which there is inflammatory swelling or thickening about the vertebral articulations may result not only in symptoms referred directly to the seat of the disease, but also to symptoms referred to other parts, owing to the pressure on or irritation of the nerve roots. With the two most common conditions, the infectious arthritis is the more acute, and the local symptoms are the most pronounced. There is more local swelling, which in the cervical spine can often be felt, and the muscular spasm causing the limitation of the motion is much more marked than with the hypertrophic arthritis. The referred pains are more sudden in their development and more acute, both in regard to the intensity of the pain as well as the duration. The recovery in such a type of disease should be correspondingly rapid and is usually complete.

With the hypertrophic arthritis the process is slow in its onset and there may be an entire absence of subjective symptoms at the seat of the disease. The referred symptoms have so little else to show for them that the real nature of the trouble is apt to be overlooked unless the examination be most thorough. In this type not only is the onset slow, but the recovery is correspond-

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inly slow, and it is in this type at times that the thickening which causes the pressure on the nerves is so marked and so dense that complete restoration of the function may never occur.

The following cases are reported as illustrative of these forms of disease:

CASE 1.—Hypertrophic arthritis of the cervical spine resulting in sufficient pressure on the cervical and brachial plexuses to cause paralysis of the arms.

Patient.—Mrs. McC., aged 58, by occupation a nurse, had always been well and actively engaged in her work until the present sickness. In July, 1893, she was caught in a thundershower and her clothing was wet through. The next morning she complained of pain in the neck, with some tenderness in the upper part of the chest. There was no cough or expectoration. The pain in the neck increased in severity very rapidly, until the slightest motion caused the most intense suffering, and because of this she was admitted to the Good Samaritan Hospital.

Examination.—At the time of the first examination she was evidently suffering a good deal. The head was held a little to one side, the chin to the left, the shoulders drawn up, and all motions were most carefully guarded by muscular contraction. Any attempt at motion caused great pain. None of the other joints were in the last involved, and aside from this local condition the patient seemed well.

Treatment and Course of Disease.—For the first week or two the patient was kept quiet in bed, and the various rheumatic remedies freely given with very little if any effect. After this a Thomas collar was applied for more complete fixation, and following this light-weight extension was used. These gave some relief, but neither could be used continuously because of the nervousness of the patient, so that the two applications were used alternately, each being worn for a few hours. In three or four weeks after the beginning of the attack a swelling appeared in the right side of the neck. This was about the size of a small lemon, and was apparently connected with the spine. At the same time numbness of the left arm was noticed, with some impairment of motion, and this condition continued and increased until the arm was almost entirely helpless. The right arm and both legs also became involved, never in as marked a degree as the left arm, but enough to make motion in bed, unassisted, impossible. At one time there was difficulty in swallowing, and for a short period breathing was almost entirely diaphragmatic. The patient's condition remained about the same for two months, after which there was a slow but steady improvement, so that at the end of the third month she was able to sit up for a short time each day, and in December, five months from the onset of the trouble, she was able to move about with but little assistance, and was taken home. The paralytic symptoms referred to in the right arm and legs had by this time practically disappeared, but the left arm was still very helpless. The swelling in the neck was practically the same as when first noticed.

Later History.—The patient was not again seen until thirteen months later, during which time, aside from the use of the Thomas collar, no special treatment had been carried out. At the time of this examination the improvement in the patient's general condition was most marked. She moved about with perfect ease, and, aside from the stiffness of the neck and some impairment in the use of the left arm, she seemed well. Extension of the neck was entirely restricted, so that in order to raise the chin the whole body was bent backward. Rotation was also entirely restricted, while flexion was more free, it being possible to lower the chin to the chest. On each side of the neck, over the tranverse processes, was distinct thickening. In the left arm all motions were limited, especially those in which the shoulder muscles were used. The fingers were flexed, apparently owing to the contraction of the palmar fascia and the flexor tendons. The sensation of the hand and arm was normal. At the present time the patient's condition is practically the same as at the time of this last note. She is able to be about at her work, but there has been no change in the condition of the neck or arm.

CASE 2.—Infectious arthritis of the cervical spine with paralysis of the arms due to nerve root pressure.

Patient.—Mr. E., aged 38, was seen in January, 1900, having had rheumatism for many years, but no one part being especially involved and the disease never being severe enough to confine him at home for more than short periods. For the year previous to the first examination the patient had had trouble with the shoulder, which had gradually extended to the neck. At the time of the examination the entire cervical spine was actually inflamed, all motions being extremely painful. At that time the left arm was much limited in its function; not only was it painful but there was a partial paralysis of the muscles. Under observation the paralysis of the arm increased until it was practically entirely helpless, it being necessary to raise the hand and place it in whatever position was desired. The right arm became considerably involved, but less markedly so than the left.

Diagnosis.—The condition represented an infectious arthritis (the so-called "rheumatism"), which had involved the cervical spine, and with the periarticular swelling the nerve roots had been constricted until a partial paralysis of the arms resulted.

Treatment and Course of Disease.—Under good hygiene, having the patient live out of doors, much as would be insisted on in a tuberculous case, with a Thomas collar to steady the head and neck, and with rational drug treatment, the patient gradually recovered, and in six months had regained the full function of the arm, with only slight remaining limitation of motion in the neck. With the general instruction as to hygiene the patient has remained well with no further trouble.

CASE 3.—Hypertrophic arthritis of the cervical spine with temporary paralysis of the shoulder and arm muscles.

Patient.—G. H., a man, aged 32, consulted me in September, 1898. He was a professor in one of our large universities. His family history was excellent; he had been well previous to January, 1897, when he broke down nervously. He went abroad, and soon after this stiffness of the neck and shoulders developed, not enough, however, to prevent his going about. Soon after this, numbness developed in the left arm, with marked loss of power, and later the right arm was similarly involved, only not so severely. The condition improved slightly, and then remained about as it was at the time of the examination. At that time there was a moderate rounded curve involving the upper dorsal cervical regions of the spine. This portion of the spine was rigid. The shoulders were drooped forward and there was atrophy of the muscles of the chest, shoulders, and upper back. On attempted motion there was spasm of the muscles about the shoulders and upper spine. The legs were normal and there was no change in the reflexes. There was marked loss of power in the left arm, with some numbness, and there was a tendency to the same condition on the right side.

Treatment.—This consisted almost wholly of support of the cervical spine, which was used for a few months and was followed by entire recovery, except for slight permanent limitation of motion of the neck.

CASE 4.—Hypertrophic arthritis of the cervical spine with arm symptoms.

Patient.—Mary S., aged 35, came to the Carney Hospital about three years ago because of trouble with the back and neck. The history as given was that a few months previously she made a change in the underclothing and took cold. This was followed by pain in the neck which prevented her from being about. At that time the slightest motion of the head was extremely painful. No other joints were involved. The arms for some time could not be used freely, the left one being worse. Under general treatment, with fixation of the neck, the patient gradually improved, so that at the present time, except for the rigidity of the upper dorsal and lower half of the cervical spine, she is well.

CASE 5.—Hypertrophic arthritis with irritation of the intercostal nerves causing the so-called intercostal neuralgia.

Patient.—Mr. R., was first seen in August, 1900, because of a persistent pain in the left side, a condition which had been present for nearly a year, which had not yielded to drugs or other forms of treatment, and which had been so persistent and interfered so much with the ordinary activities that the patient, who was an active business man, had practically decided to retire from all active life. The back was rounded forward, there was limitation of motion in the lower dorsal and

lumbar regions, the motions of the spine increased the pain along the line of the intercostal nerves, and sudden movements, such as coughing or sneezing, increased it markedly. The case was one of hypertrophic arthritis of the dorsal spine with pressure on and irritation of the intercostal nerves.

Treatment.—A jacket was applied holding the body erect and relieving the irritation of the dorsal spine consequent on motion, with immediate relief and with entire recovery in a few months. The patient remained well after that time.

SACROILIAC LESIONS

Undoubtedly the most common joints to show lesions of any sort are those between the ilia and the sacrum, since these joints are supported entirely by muscles and ligaments, and consequently anything which interferes with the tone of those may lead to strain of the joints or sag or displacement of the bones; and since the sacral plexus of nerves passes directly over these joints, it is not to be wondered at that in many of such cases pain is present, due to the irritation of some portion of this plexus. Undoubtedly more of the cases of sciatica are due to this than to any other one thing, and in such cases not only may pain be present, but the continued irritation of the nerve may lead to an exaggeration of the reflexes, or, if the pressure is severe enough, actual paralysis may exist.

The location of such pain naturally varies and depends on the amount of or the portion of the plexus that is irritated. It may be quite general and extend the length of the leg, or it may be confined to definite areas, there being areas of hyperesthesia or anesthesia. The symptoms will be increased by motion in the affected joint, and are almost invariably worse at night or when the body is for long in the recumbent position, during which time the supporting muscles relax. With this relaxation the lumbar spine is allowed to sag and thus drags the upper part of the sacrum backward, producing strain of the joint with resulting pain, either local or referred.

The increase in the pain in sciatica when the patient is in bed and the common custom in such cases of sleeping in a chair in the semierect position is to be explained in this way.

CASE 6.—Weakness of the sacroiliac joints following injury and acute illness, with ultimate displacement of the sacrum, this causing obstinate sciatica.

Patient.—Miss S., had been an invalid for fifteen years, suffering much from sciatica, with backache and neuritis of the right arm. The history is that seventeen years previous to her being seen she fell over some stairs, striking the lower part of the back, being quite lame for a short time, with considerable pain referred to the lower back. Two years later she had an acute illness, with a high temperature which lasted for a few days. After this a severe backache developed, with pain in the right leg, and ever since then the patient had pain in the leg, called sciatica, with continued backache, and in practically all of that time was an invalid. The menstrual period was attended with marked increase of pain.

Examination.—The patient was in extremely poor general condition, with extreme tenderness over the region of the sacrum and especially the sacroiliac articulations. She was able to walk only with the use of a cane, and any motion of the lumbar spine or of the thighs which produced motion or strain of the pelvic joints caused an increase of the pain. The straight leg raising, in which the hamstring muscles are made tight, was exceedingly painful and allowed to only a few degrees. There was much pain referred to the arms and hands, increased or relieved by posture. The history suggested weakening of the sacroiliac joints at the time of the injury, with a relaxation of the joints at the time of the acute illness, and the displacement of the sacrum backward at that time, the sciatica representing the irritation of the sacral plexus consequent on the displacement of the bone. The pain of the arm, neuritis, was due to the extreme forward position of the shoulder, a part of the weakened condition, and the crowding of the brachial plexus against the ribs by the head of the humerus.

Treatment and Course of Disease.—The sacroiliac joints were manipulated under an anesthetic, the sacrum was forced into place with a marked temporary increase of the sciatic pain, but with a marked relief almost at once in the general nervous tension. With the aid of supports, consisting first of the adhesive plaster strapping, later on of the pelvic belt and a flexible back brace, the patient was able to get about, and has gradually regained her health, with nearly the normal return of the functions of the body. With the change in the posture and the holding of the shoulder back the pain in the arms has disappeared.

CASE 7.—Obstinate sciatica due to displacement of the sacrum.

Patient.—Mr. A., aged 19, midshipman at Annapolis, had been under active treatment and away from his duties for the past ten months because of severe sciatica in the right leg. The trouble came on suddenly and persisted and caused much suffering ever since. In that time the patient had all sorts of treatment, including injections along the nerve sheath, massage, long periods of rest, drugs, etc., with no improvement.

Examination.—The patient stood with the muscles of the spine and thighs all in marked spasm, with the body listed to the left, with forward bending and side bending markedly limited, with the spinal motions much more free when sitting, in which position the hamstring muscles are relaxed, with the hip motions free except the straight leg raising, this being almost entirely limited on the left side, and considerably limited on the right, with marked tenderness over the sacroiliac articulations. The case was one of backward displacement of the sacrum on the left side, with the sciatica resulting from the irritation of the sacral plexus.

Treatment and Course of Disease.—The patient was admitted to the hospital and the joints manipulated, but the replacement of the bone could not be accomplished at that time. Plaster-of-Paris jackets were applied and other forms of spinal support without relief, and three weeks later another manipulation was attempted, this time with a distinct slip of the bone into place, with immediate relief of the sciatica. A few days later the patient left the hospital, and on the way across the city the bone slipped slightly out of place, with an instant return of the sciatic pain, which was at once corrected by the application of a brace which forced the bone back into place. Since then, with the use of a pelvic belt, there has been no further difficulty. There has been no return of the pain.

CASE 8.—Severe sciatica due to displacement of the sacrum and with severe brachial neuralgia due to the forward position of the shoulder.

Patient.—Miss W., aged 28, was seen four years ago because of severe sciatica which had been present off and on for four years. In that time the patient had had much backache and the sciatica had been so constant, making sleep difficult, that the patient had become very nervous and was in a marked neurasthenic state.

Treatment and Course of Disease.—From the attitude assumed in standing and the motion allowed, together with the tenderness over the sacroiliac joints, a lesion of these joints was diagnosed and fixation apparatus applied, but entirely without relief. Manipulation was then attempted and resulted in a marked slip of the sacrum into place, with instant relief to the pain, with an immediate ability to go about, with a rapid disappearance of the neurasthenic symptoms, and an entire relief of symptoms ever since. A belt was worn for a few months following the manipulation. The patient also complained much of pain in the arms, chiefly the right, which interfered much with all function and which caused much suffering at night. This persisted after the sciatica was relieved by the manipulation and in an attempt to control it she was at one time confined to bed for three months under the care of most competent physicians, but without relief. Recognizing later that the pain in the arm was due to the crowding of the brachial plexus by the head of the humerus in the forward position and that this forward position was held by adhesions

in the coracoid bursa, I manipulated the shoulder so that the adhesions were freed and the erect shoulder position could be maintained. This was followed by distinct relief at once, with a gradual disappearance of the "nerve" pain, until the patient was entirely well. A light shoulder-brace was worn to hold the shoulders back for several months.

THE SHOULDER MALPOSITIONS AND THEIR EFFECT ON THE BRACHIAL PLEXUS

With the drooping of the shoulder forward the scapula rotates so that its axis is directed forward and outward at the top, and with this the glenoid cavity is lowered so that the shoulder is finally supported by the humerus resting against the ribs. In this position, naturally, the axillary structures are compressed between the humerus and the ribs. If the patient is stout, all of the structures are compressed, resulting frequently in disturbances of circulation in the hands and arms as well as pain along the distribution of the branches of the brachial plexus. If the patient is thin the ulnar nerve, which is most posterior, is commonly pressed on and the frequent ulnar neuritis seen in such cases is in this way explained. If, in addition, the costume is so arranged that the fat tissue under the axilla and below the bust is crowded up under the arm, the compression of the axillary structures by the arm is increased.

Occupation or attitude which increases this forward position naturally increases the pain and at times leads to an entire inability to use the hand, seen most strikingly in the so-called "writer's cramp."

Such being the case, naturally the correction of the position of the shoulder so that the axillary structures are no longer compressed and the training of the individual to use the body erect rather than drooping are of the utmost importance for the cure of such conditions. If in such cases the forward flexion of the upper part of the scapula makes it impossible to extend the shoulder fully, as is often the case, an operation for the correction of this should be performed, as until this is corrected real cure can not take place.

CASE 9.—Marked stoop shoulder with an extreme degree of brachial neuritis and writer's cramp.

Patient.—A man, aged 30, tall, of slender build, always having stooped considerably, had, for a year previous to the time of the first consultation in July, 1908, suffered much from pain in the right shoulder and arm, always made worse by writing, and being a journalist by profession, this seriously interfered with his occupation. The condition had become so bad that all use of the hand had to be avoided, and the patient had become much broken in health as the result of the constant pain.

Examination.—At the time of the examination the forward position of the shoulder was most evident, and the fact that the brachial neuralgia could be increased by increasing the forward position was demonstrated. As the result of the long-standing forward position of the shoulder, which had undoubtedly occurred during childhood, the scapulæ were flexed forward, so that the erect position of the shoulder was impossible.

Treatment.—Accordingly, after some entirely unsuccessful experimentation with braces, an operation was performed consisting of the removal of the upper part of the scapula, so that the shoulders could then be carried erect; and with this, with the temporary use of braces, the neuralgia and pain in the arm gradually ceased, until at the present time the patient is practically well.

CASE 10.—*Patient.*—A young woman, aged 30, a professional violinist, sought relief from pain in the right hand, always brought on in connection with her violin-playing, which had become so marked that the question of giving up her profession had been forced on her. The pain was all referred to the hand, with nothing locally to show for it, and in the examination it was found that the patient within the past year had changed the style of bowing, using the arm more horizontally than previously, and that the pain was developed only when the bow was drawn to its extreme length, in which position the shoulder was carried markedly forward. When the shoulder reached a certain point the pain developed so markedly that it was difficult for the patient to hold the bow.

Treatment.—After some consideration of the problem, a light shoulder brace was applied which prevented this extreme forward position of the shoulder, and with this, and with the training of the patient to use the shoulder rightly, the pain and disability have been entirely controlled. (See also Cases 6 and 8.)

THE EFFECT OF WEAKNESS OF THE PELVIC JOINTS ON THE GAIT IN PARALYTIC CONDITIONS

In nearly all of the paralytic conditions the body is inclined forward in walking, and frequently the knees are used flexed. Not only do both of these positions favor strain of the sacroiliac joints, but neither position can be for long maintained by any one, irrespective of the paralysis, without strain of these joints resulting. If these joints are strained and become relaxed, since the pelvis represents the structural base of the body to which all of the trunk and thigh muscles are attached, obviously locomotion becomes difficult, because these trunk and thigh muscles naturally work at a disadvantage and the gait is peculiar simply because of the joint strain, entirely apart from the paralysis. Recognition of this fact and provision of proper support for the pelvic joints frequently results in marked improvement in the gait and the disability so commonly present in these paralytic conditions can frequently be strikingly modified. The joint protection does not, of course, change or cure the paralysis, but frequently lessens the disability to a marked degree, and should be definitely recognized in the treatment of these conditions.

CASE 11.—*Patient.*—Mr. J., aged 41, sought treatment because of trouble with the feet, giving the history that for some months he had been growing increasingly more helpless, having difficulty in keeping his balance, difficulty in walking in the dark, and much unsteadiness on turning quickly, with some drag of the toes. The case was one of locomotor ataxia, with entire absence of the reflexes, disturbed reaction of the pupil, and in connection with this a distinct flat foot, with a well-marked strain of both sacroiliac joints.

Treatment and Course of Disease.—A pair of foot plates were given to relieve the foot strain, the adhesive plaster strapping was applied to the lower back and a pelvic belt ordered to increase the pelvic stability. At the time of the second visit the patient reported himself as being markedly improved and as being able to walk much more freely. The belt was applied and this continued in connection with the foot plates, with continued improvement over the condition which was present at the time of the first visit. The apparatus does not, of course, change in any sense the cord lesion, but by relieving the mechanical strain caused by the weakness of the pelvic joints and the feet, the disability, which is the natural result of his cord lesion, is much less marked and the patient correspondingly elated.

CASE 12.—Lateral sclerosis of the spinal cord.

Patient.—Mrs. W., aged 57, had been growing progressively more helpless. The progress has been the natural progress of such a case, with gradually increasing disability. For the past few years there had been an increasing difficulty in the control of the urine. At the time of the examination it was perfectly obvious that in connection with the spinal cord lesion the pelvic joints were markedly strained and as the result of the chronic strain the sacrum was slightly displaced.

Treatment and Course of Disease.—At that time, as several patients with similar joint lesions had been markedly relieved of troublesome frequent micturition in connection with the treatment of the joints, manipulation of the sacroiliac joint was advised in the hope that the difficulty with the micturition

would be controlled in her case, and hoping at the same time that the gait could be improved. Following the manipulation there was distinct improvement in the gait, so that the patient, who had previously been unable to walk across the room without assistance and unable to go over the stairs, was able to walk across the room with comparatively little unsteadiness and was able, with the assistance of the bannisters, to go up and down stairs. The character of the gait was curiously changed following the manipulation, and from the usual dragging of the toe seen in such cases the gait at first was more like the gait of the high-stepping horse, the knees being drawn up markedly as the step was taken forward. The patient during the past year has worn a belt about the pelvis and has had various forms of supports to relieve the strain on the sacroiliac joints and in that time has been more active than it was possible for her to be in the few years previous. The case, of course, represents a spinal cord lesion in which the prognosis is presumably hopeless, but with distinct improvement resulting from the relief of the joint strain which is a necessary result of the use of the body with such a paralytic condition.

CIRCULATORY DISTURBANCES IN THE NEURASTHENIC OR IRRITABLE SPINE

In any condition in which the spinal muscles are weakened the body must droop or be inclined forward during use. Not only this, but if the body is used in the forward position for long the muscles become fatigued, and if the use is continued they necessarily are weakened, so that a still further tendency for the spine to droop exists. The posture with the weakened muscles must result in strain of the various spinal ligaments, especially the interspinous, a condition which shows by the painful points along the spine so commonly found in such cases.

The spinal muscles receive their blood supply in the lumbar region from the lumbar arteries and in the dorsal region from the intercostal arteries. Branches are given off from these vessels which go directly into the spinal canal on a level with each vertebra. If for any reason the muscles of the spine are weak so that there is not the usual amount of blood supply to the muscles, it is probable that the flow of blood through these spinal branches is also not normal, and if this is the case it must mean that the spinal cord is less well supplied with blood than normal. It is possible also that the interference with the normal motions of the spine which must result if the muscles are weakened results also in venous and lymphatic stasis, so that a congestion exists which also interferes with the nutrition of the spinal cord.

These are conditions which naturally can not be proved anatomically, and which must be matters of speculation, but as a proposition it seems reasonable, and the marked change in the neurasthenic elements in many of these cases as soon as the spinal strain is relieved so that the free action of the trunk is possible would seem to bear out such a supposition. If such a condition does exist it should emphasize the importance of training our patients in proper poise, not simply because of esthetic considerations, but because by so doing the function of all the organs will be carried on more easily, and especially because the circulation in the spinal cord will be more free and the nerve centers which control the various structures may be better nourished and consequently possess greater vigor.

THE REAL SIGNIFICANCE OF THE KERNIG SIGN

The limitation of the straight leg raising when the patient is lying on the back or when sitting has been used, since it was originally described, as a common test for sciatica and other conditions in which the nerves have been more or less involved. The limitation in this movement is brought about by spasm of the hamstring muscles, and as these muscles, together with the lumbar muscles, are the ones which are concerned in the protection of the sacroiliac joints, it seems probable to me that the "sign," as it is commonly designated, is almost always, if not always, simply an indication of strain or disease in these joints. I have never seen the "sign" present unless other tests were present confirmatory of the joint lesion, and since a large proportion of the cases of sciatica are due to the irritation of the sacral plexus in connection with the lesion of the sacroiliac joint, and since in many of the paralytic conditions the sacroliac joints must be strained, the presence of the sign in these cases is easily explained. It seems probable to me that the "sign" is chiefly of value as indicating joint weakness and possesses little other significance.

Such are a few of the subjects which I feel should be fully understood by both the neurologist and the orthopedic surgeon. Our function is to prevent as well as to control disease, and both of these elements are involved in the problems which, because of the small amount of time available, have been so briefly presented.

If we can train our patients to use their bodies rightly not only will there be less waste of both nervous and physical force, but the suffering which at times comes because of the faulty use will not occur. If the conditions here decribed are recognized, the relief of the suffering as well as the control of the disease become matters of much greater certainty than they have been in the past.

In approaching our patients not only should we consider the pathology concerned in their troubles, but also we should endeavor to understand fully the anatomic relations of the parts and the possible effect of imperfect mechanical adjustment.

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ABSTRACT OF DISCUSSION

DR. T. DILLER, Pittsburg, Pa.: I was entirely ignorant of the disease of the sacroiliac joints until my attention was directed to them by Dr. David Silver, an orthopedic surgeon, two years ago. Since then I have been able to recognize three of these cases, and I am sure they would have been obscure to me without the assistance he gave me. In one case, a woman presented many neurasthenic signs, such as pain along the spine, and there was a certain pain which was different from anything I had noted. She stated that the pain came in the neighborhood of the sacrum about the buttocks very suddenly at night when she would turn in bed. It was not the sort of pain that one encounters in the neurasthenic. Dr. Silver demonstrated distinct looseness in the sacroiliac joint, applied a proper bandage, and the patient was relieved. A medicolegal case I saw recently was another of this sort. The patient was a young woman of about 25 who was riding in a railway train on a so-called reclining chair, riding at night with her feet up on the chair in front of her. The train came into a collision, and she was so seated that she was doubled up like a jack knife, her feet being brought in contact with her head, so that there was a very forced doubling of the joint at the hips. Now, this patient complained of a number of neurasthenic symptoms: great pain about the region of the sacrum and running down the back of the thigh, as Dr. Goldthwait has mentioned. There was not the ordinary spinal tenderness that we so frequently meet in these cases, and a careful examination of this patient was made with the assistance of Dr. Silver; he demonstrated looseness of this joint by having the patient raise her thigh and put it down while she was in a standing position, and we could distinctly feel crepitus. My experience is limited in this field, yet this is a very important matter, and I am now on the lookout for these cases of sacroiliac disease. I have seen a number of cases of stiffness of the spine,

and they are quite obvious if one is on the lookout for them, and I think the only chance of missing them is by not thinking of this condition.

DR. ROBERT L. PITFIELD, Germantown, Philadelphia: I recall two cases of sacroiliac disease following labor, one of which yielded to strapping of the back, but I was compelled in another case to apply a belt and bind the woman, and she suffers even now from pain, particularly on rising from bed in the morning.

DR. WILLIAM A. JONES, Minneapolis: In many of these cases that Dr. Goldthwait has described, in which there is actual nerve irritation, is it due to changes in position of the vertebra, and is it probable or likely that aside from the sacroiliac joint that the position of the other vertebræ can be changed at all? This, I think, is a difficult question for neurologists to appreciate fully.

DR. J. E. GOLDTHWAIT, Boston: I do not believe that the vertebræ change their position very much. The cervical vertebræ, I am sure, can be slipped a little bit out of place, and I am inclined to think that is more common than we generally suppose. I do not believe that the dorsal and lumbar vertebræ change their places much unless there is severe trauma. I think that the last lumbar vertebra can be slipped forward on the sacrum much more commonly than is generally supposed. Pregnancy is the most common source of the relaxation of the joint, but that is rarely productive of pain such as a neurologist would note, because the relaxation is so soft and the tissues are all so much relaxed that the nerves and all the tissues are stretched, and there is comparatively little pressure. If the pain continues and the stability does not return with the use of a belt or proper support, I should suspect that the bones were not in quite the original position, because usually when they are in the normal position Nature is ready with the muscles and ligaments to hold them in that position.

In so-called cases of railroad spine, examine the sacroiliac joint. I never saw a railroad spine which was not really a sacroiliac joint sprain. If you will read the books on this condition you will find that the profession is not in accord as to what it is, and if you will study the mechanics of the spine and the nature of the accidents commonly productive of railroad spine, the wonder is not that people have the sacroiliac joint strains which lead to the weak backs and nervous backs, etc., but that they all do not get it. It is the sudden stopping and the jerking of the body forward or backward, with the muscles off their guard, that causes the trouble.

THE SURGICAL ASPECTS OF CEREBRAL DECOMPRESSION

WITH REMARKS ON THE ETIOLOGY AND CERTAIN MANIFESTATIONS OF PAPILLEDEMA *

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Though having had the privilege of presenting a paper on a kindred subject to this Section but a year ago, your Secretary has been kind enough to invite me to participate in your transactions again and has assigned to me the topic of the "Surgical Aspects of Cerebral Decompression." Rather than to any contribution of my own, I attribute this opportunity chiefly to the fact that one of your members, Dr. de Schweinitz, has been so closely identified with all the neurologic cases in my clinic, and in this connection I should like to emphasize the importance not only from the standpoint of the patient's welfare, but as a means of accurate and reliable observation of the closest coöperation, between the ophthalmic and neurologic staff on the one hand and the surgical on the other. An exhaustive study of the case before operation at the hands of the experienced neurologist and ophthalmologist, their observations of the lesion at the time of the operation, and their continued studies of the after-effects serve as a safeguard against surgical blunders and guarantee accuracy and reliability in the published records.

Of all the phases of papilledema, none has aroused more interest and discussion than the etiology. The conditions in which it has been associated are well known, notably tumor, hydrocephalus, and more recently traumatic lesions. It has been assumed by some that the most important factor in its pathogenesis is increased intracranial tension. Plausible as this theory is, it is not borne out by experimental evidence, at least with one or possibly two exceptions experimenters have thus far failed to produce a papilledema solely by increasing intracranial tension. Because of the existing obscurity as to its etiology, I have with the collaboration of Drs. de Schweinitz, Sweet, Prime and Holloway, made a series of observations in the Laboratory of Experimental Surgery of the University of Pennsylvania, for the purpose of determining for ourselves whether increased tension did or did not play any part. The experiments will be published in detail together with others bearing on the subject of decompression so that I shall allude here only to the essential features.

Two methods of increasing intracranial tension were employed, the wet and the dry. By the dry method, a small rubber bag was introduced beneath the skull after splitting the dura and retained in place by a special appliance. By elevating the reservoir, the bag was distended with water to the point of maximum tolerance. By the wet method, normal saline solution was introduced through a small canula screwed into the skull; the dura was opened and the rate of flow was regulated by elevating or lowering the reservoir. In some cases, the fluid was introduced into the pretentorial space, in some into the subtentorial space. The degree of intracranial tension was determined by kymographic tracings of the blood pressure, the respiration and in some instances of the brain pressure. Examination of the eyegrounds were made by Dr. de Schweinitz or by Dr. Holloway, before the experiment was begun and afterward at intervals of every few minutes. The degree of intracranial tension was recognized by the increase in blood pressure and by the partial or complete arrest of the respiratory function. In every experiment, tension was increased up to a point where the respiratory function was arrested and it became necessary to resort to artificial respiration to resuscitate the animal.

The following is the summary of the observations:

CASE 1.—Summary: Dry method. Extreme degree intracranial tension; no evidence of choked disc; slight dilation and pulsation of nasal branch of retinal veins. The changes in the vessels were quite as marked on the opposite side as on that on which pressure was inserted.

CASE 2.—Summary: Dry method. Under a degree of intracranial tension, sufficient to cause arrest of respiratory function and elevation of the blood pressure, signs of intracranial tension continued from one to two hours. There were no changes in the eyeground other than filling and subsequently pulsation of the retinal veins.

CASE 3.—Summary: Dry method. Increase of intracranial pressure attended with most profound disturbance of the respiratory and circulatory centers caused practically no changes whatsoever in the eyeground, not even the filling and pulsating of veins as observed in previous experiments.

* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

CASE 4.—Summary: Wet method. Intracranial pressure increased by introduction of 185 c.c. of normal saline solution in subtentorial region. Much smaller quantity required to cause changes in retinal vessels and the death of the animal than in pretentorial region. No signs of papilledema.

CASE 5.—Summary: Wet method. The enormous amount of saline solution (2,520 c.c.) which was absorbed in so short a time (two hours) in itself was remarkable. The eye symptoms, except exophthalmus, were not particularly marked; no edema or pulsation having occurred. At the autopsy all the organs, with the exception of the lungs, were filled with fluid.

CASE 6.—Summary: Dry method. Increase of intracranial pressure (by distention of a bag inserted within the cranium) up to and beyond the physiologic limit, as indicated by the arrest of the respiratory and circulatory function, failed to provoke papilledema. At times the discs were bleached; at times the veins were distended, and at times there was pulsation of the vessels, but nothing more.

CASE 7.—Summary: Wet and dry method combined. The intracranial pressure was increased with the distended bag until there were signs of intracranial tension; the latter was increased up to and beyond the maximum degree of toleration by the introduction of 100 c.c. of normal saline salt solution. No changes in the eyegrounds were observed.

From the experiments these conclusions are drawn:

1. Increase of intracranial tension by artificial means up to a point attended with profound disturbance of the circulatory and respiratory functions was in no instance attended with development of a papilledema, except in two instances not here recorded, and in these there was no marked swelling of the disc, but only a slight edema and filling in of the center of the discs.

2. The duration of the observation varied from two to ten hours; in one instance increased intracranial tension was maintained and observations made from six o'clock in the evening to four o'clock the next morning. So that the element of time did not affect the results.

3. In some instances the eyegrounds were bleached (the stage of anemia) and in many there was more or less fulness and occasionally pulsation of the retinal veins, but nothing else.

4. The degree of intracranial tension artificially produced in these experiments exceeded by far that which obtains in the vast majority of these lesions of which papilledema is a clinical manifestation.

5. Therefore, in the etiology of papilledema some factor or factors other than increased intracranial tension play an important part.

6. What these may be is still a matter of conjecture.

Papilledema and its relation to intracranial trauma is a subject which has commanded our attention for a number of years. The statement has been made that papilledema is a more or less constant accompaniment of those cases of intracranial trauma in which there is obstruction to the venous circulation, the stage of *Stauungs hyperemie* which, according to Kocher's scheme, is the first stage of cerebral compression. These include cases of cerebral contusion, in which edema is a conspicuous feature, although it might include also cases of large intracranial hemorrhages. For the past two years Dr. de Schweinitz has examined almost all the cases of this description in my service at the University Hospital, and in all he has discovered but two cases of papilledema. This is an insignificant number on which to base any conclusion, but a small number of carefully studied and observed cases is often of greater value than a mass of imperfectly digested material.

Because of their direct bearing not only on the etiology of papilledema but on the question of operative interference for relief, I refer to the cases in some detail.

CASE 1.—A young man, aged 25, sustained an injury to his head in falling from a trolley car.[1] There was no positive evidence of fracture of the skull and the case was regarded as one of cerebral contusion. The principal symptoms were vomiting, delirium and frontal headache. The latter was intense and persisted in this intense form for at least ten days after the accident. The pupils were equally dilated and there were no focal symptoms. The superficial veins of the scalp were conspicuously dilated.

January 10 (seventh day): Dr. de Schweinitz examined the eyes with the following result: The right disc edematous; + 3.5 D.; veins enormously distended; retinal hemorrhage below disc; left disc + 5 D.; veins distended and hemorrhages above and below disc.

January 13 (tenth day): Swelling of discs not so marked between 3 and 4 D. Veins not so full. Vision O. D. 4/5 O. S. 4/6.

January 19 (sixteenth day): R. O. highest surface of disc + 4 D.; some hemorrhage L. O. disc + 4 O.; hemorrhage above; veins very full.

The patient was discharged from the hospital but returned to the out-patient clinic for further observation. Within a few weeks the vision was entirely normal and the papilledema had entirely disappeared.

In this case we see a type of intracranial trauma which would be regarded as a concussion or, more properly, a contusion without evidence of fracture but with symptoms persisting for almost two weeks, at no time attended with unconsciousness, stupor or convulsions, but with a moderately high grade papilledema which subsided spontaneously, that is, without operative intervention. The question of a decompressive operation was considered, but because of the absence of conditions that could be said to be alarming, was not resorted to.

CASE 2.—A woman, aged 35 years[2] fell from a trolley car and sustained a serious injury to her head. On admission she was completely unconscious and did not respond to any external stimuli. There was a large hematoma on the left occipitotemporal region, but no fracture could be felt. There was no bleeding from the nose, mouth or ears; the pulse was slow and intermittent and the blood pressure 128 millimeters of mercury. Examination of the urine discovered 3.5 per cent. of sugar. There were no sensory and no motor phenomena except in the muscles supplied by some of the cranial nerves. There was some weakness of the muscles supplied by the left facial nerve. In examining the eye, Dr. de Schweinitz reported as follows: R. O. oculomotor palsy; superior, inferior and internal rectus involved; ptosis not quite complete; pupils dilated about five millimeters; no reaction to light; well marked edema of the disc + 3 D.; enormous dilation of the retinal veins and moderate tortuosity; arteries unchanged; L. O. no involvement of the external ocular muscles; condition of the disc and retinal veins same as on the other side. The symptoms were attributed to a serious cerebral contusion and the involvement of the cranial nerves to small nasal hemorrhages, possibly to a fracture of the petrous bone.

January 10 (seventh day): All the edges of the discs were clear except the nasal; the veins were distinctly smaller; right eye still diverges.

January 20 (seventeenth day): The edges of both discs were perfectly clear and the veins not far from normal in size.

The patient gradually recovered consciousness and from the subsequent mental confusion, and as her life was at no time threatened operative interference was not contemplated.

Whatever other indications there may be for decompression in cases of intracranial trauma, it would appear from these at least that papilledema alone can not be regarded as one. In both instances the papilledema measuring + 7 and + 3.5 diopters respectively sub-

1. Index File No. 4259. For the report of this case I am indebted to Dr. Edward Martin.
2. M. B. Index File 4362.

sided spontaneously within a comparatively short time after the accident, *i. e.*, between two or three weeks.

Furthermore, I wish to call attention to the relative infrequency of papilledema as a manifestation of serious types of intracranial trauma. That it may exist in certain instances there is no doubt, but its comparative infrequency, minimizes its significance as a diagnostic sign and as a means of determining the degree of intracranial tension and the necessity of relieving it by surgical measures.

The question of the relation of the papilledema to the size, situation, duration and nature of the tumor is not a new one. That the size of the tumor has little to do with the degree of elevation of the disc is the consensus of opinion; that a cortical or a basal tumor is more apt to cause papilledema than a subcortical, in the white substance of the brain, is also well known, and finally that tumors in the subtentorial region lead to papilledema earlier in the course of the case than pretentorial cases, will not be questioned. In tabulating a series of 19 cases, selected only from patients examined whose operative experience has been so exceptionally large, but it agrees with the more recent observations of Mr. Paton. I present this series, small as it is, for what it may be worth, and I may add, I think, without contradiction of Drs. de Schweinitz, Mills, or Spiller, who have examined practically every patient operated on in my clinic, that in cases in which there was any doubt as to whether the lesion was on one side or the other, it was the exception rather than the rule to be able by examining the swelling of the discs alone to draw any definite conclusions. Much help, however, can be obtained by studying the age of the nerve-head changes, that is, which disc has been longest affected, by finding the signs of beginning atrophy, etc., points which Horsley also considers most important.

In dwelling on these various aspects of papilledema I have wandered somewhat afield from the subject assigned me, namely, "The Surgical Aspects of Cerebral Decompression." Reference has already been made to the propriety of decompressing in cases of intracranial trauma with papilledema. Apart from trauma, decompression is practiced as a means of relief in certain cases of hydrocephalus, tumors and internal hydrocephalus, but as there are no ocular manifestations of importance in epilepsy I shall confine my remarks chiefly to tumors with or without hydrocephalus.

TABLE 1

No.	Name.	File No.	Diagnosis.	Operation.	Eye Examination Before Operation.	Eye Examination After Operation.	Result.
1	L. E. P.	560	Sarcoma cerebellum.	12, 17, '03. Craniectomy; removal of small tumor.	12, 8, '03. O. D. + 7 D. O. S. + 7 D.	1, 25, '04 O. D. + 4 D. O. S. + 3 D.	Died 10, 27, '04.
2	M.G.J.	1782	Tumor cerebello pontile angle.	10, 15, '06. Unilateral decompression; suboccipital craniectomy.	10, 10, '06. O. D. + 4 D. O. S. + 3 D.	12, 9, '06. O. D. + 3 D. O. S. + 1 5 D.	Still living.
3	F. M...	578	Sarcoma of cerebellum.	3, 13, '04. Suboccipital craniectomy and removal of portion of cerebellum.	3, 7, '04 O. D. + 4 D. O. S. + 3 D.	3, 26, '04. No change.	Recovered; died subsequently.
4	G. E...	697	Tumor of cerebellum.	12, 14, '03. Unilateral suboccipital craniectomy; portion of cerebellar (⅓) hemisphere removed.	12, 12, '03. O. D. + 4 D. O. S. less.	11, 6, '07. Entirely subsided.	Recovered; still living.
5	P. K...	1054	Cerebellar tumor.	5, 17, '05. Unilateral suboccipital craniectomy; portion of hemisphere removed.	5, 12, '05. O. D. + 6 D. O. S. + 4 D.	7, 21, '05. Discs show practically no swelling.	Recovered; died 12, 24, '05.
6	S. L...	1157	Cerebellar tumor.	10, 26, '05. Unilateral suboccipital craniectomy; dura not opened.	10, 23, '05. O. D. + 5 D. O. S. optic atrophy.	2, 1, '06. O. D. + 1 D. O. S. + 1 D.	Recovered; still living.
7	S. L...	1157	Cerebellar tumor.	Second operation 6, 14, '06. Dura split.....	6, 11, '06. O. D. + 1 D. O. S. + 1 D.	6, 21, '06. O. D. + 1 D. O. S. + 1 D. Practically flat.	Recovered; still living.
8	T. H. A.	3107	Sarcoma cerebello pontile angle.	12, 8, '07. Unilateral suboccipital craniectomy.	12, 6, '07. O. D. + ⅝ D. O. S. + 1.5 D.	1, 8, '08. O. D. + 2 D. O. S. Swelling subsided.	Died subsequently, after radical operation.
9	E. F...	1267	Tumor of cerebellum.	3, 10, '06. Unilateral suboccipital craniectomy.	Well-marked atrophy.	Well-marked atrophy.	Recovered; still living.
10	H. M..	3686	Tumor of cerebellum.	6, 29, '08. Bilateral suboccipital craniectomy; dura split.	6, 26, '08. O. D. + 5 D. O. S. + 5 D.	7, 30, '08. O. D. + 1 D. O. S. Atrophy; practically no swelling.	Recovered; still living.
11	M. S...	3697	Tumor of cerebellum.	6, 30, '08. Unilateral (left) craniectomy.....	6, 28, '08. O. D. + 8 D. O. S. + 8 D.	7, 31, '08. O. D. + 1 D. O. S. No swelling.	Recovered; still living.
12	E. D...	1231	Tumor of cerebellum.	2, 26, '06. Unilateral suboccipital craniectomy; dura not split.	2, 15, '06. O. D. + 6 D. O. S. + 7 D.	3, 25, '06. O. D. + 4 D. O. S. + 3 D.	Death.

by de Schweinitz and subsequently operated on by myself, I found that with two exceptions (in which the discs measured + 7 and + 9 diopters respectively) whenever a papilledema was present the measurements were rather uniform; that is to say, the majority measured from + 3.5 to + 4 or + 4.5 D. Irrespective of duration, of the nature of the tumor, whether infiltrating or more or less encapsulated, with the size varying from that of a chestnut to a hen's egg, there was a comparatively uniform elevation of + 3 to + 4 diopters. In other words, a trivial and insignificant variation.

If I may be permitted to refer to another threadworn subject, namely, the equality or inequality of the discs in the affected as compared with the unaffected side, I would like to place in evidence a series of cases in which the discs were examined by Dr. de Schweinitz before the operation and we were able at the operation to expose the tumor. In these there was not enough difference between the disc of the affected and that of the unaffected side to enable us to draw any conclusions as to the seat of the tumor. This testimony is in absolute disaccord with the very positive statements of Horsley,

It is a well-known fact that the large majority of tumors, whether pretentorial or subtentorial, are inoperable. That is to say, the majority are either inaccessible or impossible of localization, or of such a nature as to make their removal inconsistent with the maintenance of life. To express the percentage of operable tumors in figures is not an easy matter; to estimate it from the results of postmortem observations is obviously misleading; to say that from 75 to 80 per cent. are inoperable is by no means a conservative estimate.

In the surgery of brain tumors there are but two propositions to consider: the radical operation, implying the removal of the tumor, and the palliative operation, cerebral decompression. From what has been said of the operability of brain tumors it will be seen at a glance that in the majority of instances the most we can offer is palliation. But in the case of brain tumor palliation implies much more than it does when applied.

to other incurable lesions. That is to say, given a patient with an inoperable brain tumor palliation means restoration or preservation of vision, relief from headache and from persistent vomiting, three symptoms which together combine to make the patient's life utterly wretched and unbearable. Without them she or he may continue to live for years in comparative comfort.

Decompression is a very much less formidable procedure , it can be performed in a much shorter time and with but trifling risk to life. It implies the removal of an area of bone with a diameter of from 3 to 5 cm. from the temporal region or occipital region on one or both sides and a free opening in the dura or the removal of a portion of it. Whether or not to decompress in the temporal region will depend to a great extent on the situation of the lesion. In all pretentorial tumors temporal decompression is the operation of choice and in all subtentorial lesions a suboccipital decompression is indicated. Usually, sufficient relief from intracranial tension will be afforded by a unilateral operation; should the tumor grow rapidly and the symptoms recur the operation may be repeated on the opposite side.

For the purpose of studying the effects of decompression on a papilledema when performed in the temporal and suboccipital regions I have tabulated two series of cases (See Tables 2 and 3) from Dr. de Schweinitz's records. Although the disc examination was not made at the same interval after operation in all cases, it would seem that the results of temporal decompression were about as good as these of suboccipital decompression or *vice versa.* While I have never decompressed in the temporal region for lesions of the cerebellum, it is reasonable to assume that by this method we might not obtain the necessary relief of tension for lesions beneath or behind the tentorium. In the case of tumors the cerebellar hemispheres are usually under much greater tension than the cerebral hemispheres, often so great that nothing but the removal of bone from directly over the seat of the hemisphere would afford adequate relief.

Cerebral decompression is called for, as a rule, in inoperable tumors; it may be resorted to, however, as a matter of temporary expediency, when the conditions do not admit of delay and the tumor can not be localized. Delay is inadmissible when the papilledema has persisted from six weeks to two months, whether or not there has been temporary improvement under the influence of mercury or the iodides, when procrastination will lead inevitably to optic atrophy and to blindness.

There should be no question about the advisability of operating in these comparatively early cases if only to save vision. The propriety of operating in the advanced cases, when the patient is already in deep stupor, may be questioned. Bruns, for example, opposes such a course. It should be borne in mind that with the patient unconscious the operation can be performed, as I have had occasion to do, without an anesthetic. The operation can be completed in twenty minutes and, while adding but little to the gravity of the situation, may save the patient's life. A striking example of this was brought to my attention in a patient referred to me by

TABLE 2

No.	Name.	File No.	Diagnosis.	Operation.	Eye Examination Before Operation.	Eye Examination After Operation.	Result.
1	W. D..	557	Tumor of brain.	11, 7, '03. Decompression.	11, 5, '03. O. D. nerve head swollen; O. S. nerve head swollen.	1, 2, '04. O. D. + 3 D. O. S. + 4 D.	Recovery; still living.
2	J. K...	3116	Tumor of brain.	1, 10, '08. Decompression.	Marked papilledema.....	Papilledema entirely disappeared.	Recovered; still living.
3	P. S...	1268	Tumor of brain.	3, 20, '06. Decompression.	1, 29, '06. O. D. + 5 D. O. S. + 4 D.	11, 6, '07. Papilledema practically disappeared; discs show beginning atrophy.	Recovered; still living.
4	M. B...	2084	Tumor of brain.	1, 13, '07. Decompression.	1, 5, '07. O. D. + 3-4 D. O. S. + 3-5 D.	11, 6, '07. Both eyes advanced optic atrophy; all swelling gone.	Recovered; living 11, 6, '07.
5	I. K...	1937	Tumor of brain.	11, 28, '06. Decompression.	11, 19, '06. O. D. + 5.5 D. O. S. + 5.5 D.	1, 5, '07. O. D. + 2 D. O. S. + 2 D.	Recovered.
6	E. U...	1862	Tumor of brain.	11, 1, '06. Decompression.	10, 26, '06. O. D. + 5 D. O. S. + 5-6 D.	12, 9, '06. O. D. + 4 D. O. S + 4 D.	Recovered; died subsequently.
7	M. B...	802	Hydrocephalus unilateral of brain.	10, 10, '04. Occipital decompression.	10, 3, '04. O. D. + 4 D. O. S. + 4 D.	10, 24, '04. O. D. + 2 D. O. S. + 2 D. 10 weeks after operation choked disc entirely subsided.	Recovered; still living.
8	I. D....	978	Tumor of brain.	6, 12, '05. Suboccipital decompression.	6, 9, '05. O. D. + 8 D. O. S. atrophy.	6, 16, '05. O. D. + 6 D. O. S. atrophy.	Death 2 weeks after operation.

TABLE 3

No.	Name.	File No.	Papilledema.	Duration.	Situation.	Nature.	Approximate Size.
1	L. E. P..	560	O. D. + 7 D. O. S. + 7 D..	10 months...	Left cerebellar hemisphere.....	Sarcoma, sharply defined.	Hazelnut.
2	M. G. J..	1782	O. D. + 4 D. O. S. + 3 D...	2 years.....	Left cerebello-pontile angle.....	Fibrosarcoma...	Horse chestnut.
3	T. H. A..	3107	O. D. + 2-.D. O. S. + 1.5 D.	7 years.....	Right cerebello-pontile angle.....	Sarcoma	Hickorynut.
4	M. S.....	3697	O. D. + 8 D. O. S. + 8 D...	6 months....	Left cerebello-pontile angle.....	Unknown.	Hickorynut.
5	E. D.....	1231	O. D + 6 D. O. S. + 7 D...	2 years.....	Right cerebello-pontile angle.....	?	Hen's egg.
6	Mrs. S...	542	O. D. + 4 D. O. S. + 5-5.5 D.	1 year.....	Left cerebello-pontile angle.....	Neurofibroma. .	Chestnut.
7	I. D.....	978	O. D. + 8 D. O. S. atrophy.	1½ years.....	Left temporal lobe at base.....	Sarcoma	5×8 cm.
8	A. G.....	836	O. D. + 3 D. O. S. + 5 D..	2 years.....	Right parietal region (cortical).....	Sarcoma	3.5×3 cm.
9	W. D....	3340	Subsiding neuritis; swelling greatest on left side.	18 months...	Left parietal region (cortical).....	? Glioma.....	3.75×2 cm.
10	J. S.....	624	O. D. + 5 D. O. S. + 4 D..	4 years.....	Right frontal (cortical).....	Sarcoma	6.25×6.25 cm.
11	G. A. H..	2146	No papilledema.....	6 months . .	Left parietal (cortical).....	Sarcoma	Hen's egg.
12	A. C. E..	3690	No papilledema.....	.....	Left parietal (cortical).....	Glioma.....	7×6×3.5 cm.
13	G. K....	464	O. D. no papilledema. O. S. beginning neuritis.	Several years.	Left parietal (cortical).....	Sarcoma	Small.
14	H. S. G..	1214	No examination.....	5 months....	Right occipital and temporal at base...	Sarcoma	Child's fist.
15	A. K.....	2223	Extensive papilledema. O. D. + 7 D. O. S. + 7 D.	1 year.....	Left temporal lobe at base.....	?	Large size.
16	E. U.....	1862	O. D. + 5 D. O. S. + 5-6 D.	6 months....	Right parietal (cortical).....	Sarcoma	Large.
17	M. B.....	802	O. D. + 4 D. O. S. + 4 D...	10 months...	Right occipital (subcortical).....	Cyst.	Capacity 1½ oz.
18	Mrs. J. L.	3205	O. D. + 5 D. O. S. + 3.5 D.	4 months....	Right occipital lobe (cortical).....	Cyst.	

Dr. Mills. The case seemed hopeless—the patient was unconscious when brought to the hospital and her life was despaired of. A rapidly executed decompression was followed by subsidence of some of the symptoms with recovery of consciousness. On the other hand, in a similar patient recently operated on for Dr. William G. Spiller, the operation seemed to have no effect on the fatal tendencies.

Finally, a few words as to the immediate and ultimate effects of decompression. At the site of the operation there developes a hernia protruding more or less according to the degree of intracranial tension. This is usually well covered with hair and therefore particularly in women, is not very conspicuous.

The mortality following operations on patients with cerebral or cerebellar tumors will depend on the condition of the patient and the seat of the lesions. The longer the duration of the lesion and the nearer the growth to the pons and medulla the greater the danger. All told, in the past seven years I have had only two fatalities following temporal decompression for cerebral tumors. In one of these the patient was stuperous when operated on, and at the autopsy a large tumor was found extending from the temporal lobe back to and including the pons. In the other the tumor also involved the pons. Of the suboccipital decompressions for tumors or suspected tumors of the posterior fossa in the same period there have been five fatalities, one in each of the years from 1904 to 1908. But three of these cases were operative deaths in the strict sense; that is, the patient never fully recovered from the shock of the operation. The two remaining lingered several weeks.

Vomiting and headache, one or the other or both, are relieved in about two out of every three cases by decompression.

In a word, the effects of decompression are in the main beneficial; in fact, so beneficial that we should not question the propriety of operating even though the case may at first seem hopeless. The only grave and fortunately a very rare consequence is sudden blindness. This has never occurred in our service, and apart from this I have never seen any aggravation of the condition of more than a transitory character.

The expectancy of life is a matter of no little interest; even though the patient survives the ordeal but a year, it is not a little in this period to have saved sight, allayed vomiting and relieved headache. In exceptional instances a longer lease on life may be anticipated. Among my patients is one operated on in 1902, one in 1903 and two in 1904. The larger the tumor and the nearer its approach to the vital centers the shorter will be the period of survival.

ABSTRACT OF DISCUSSION *

DR. JAMES BORDLEY, JR., Baltimore: I believe that I can best emphasize the importance of this subject by relating some statistics gathered from the records of 91 out of nearly 300 of the patients operated on by Dr. Cushing at the Johns Hopkins Hospital.

In determining which eye was the more affected—the one contralateral or homolateral to the tumor—we considered not only the swelling but the actual condition of the nerve head, outside of the swelling, the visual fields and the acuity of vision. This was necessary because while the swelling of one disc is increasing the other may have undergone atrophy and the swelling have entirely disappeared. The eye homolateral to the tumor exhibited the greatest change in 68 per cent. of the patients in whom the location of the tumor was a matter of certainty; the eye contralateral to the tumor in 26 per cent.; and in 6 per cent. swelling was equal on two sides.

There was no relationship between the histology of the tumor and the height of the choked discs, that is, none that could be of assistance in determining from the disc whether we were dealing with a malignant or benign growth. Patients with benign tumors and choked discs or from 1 to 7 D.; those with malignant tumors from 1 to 9 D. The disc in cerebellar cases had an average height of 5½ D.; with tumors situated further forward, 3½ D. There was, however, such a radical difference in the height of swelling of the discs in patients with tumors in identically the same situation that we look upon the degree of swelling as only suggestive but not conclusive as a localizing sign. The height of the swelling in the 182 discs of these 91 patients, before operation, was from 1 to 2 D. in 28; from 2 to 4 in 68; from 4 to 6 D. in 51; from 6 to 9 D. in 25, and in 18 there was complete secondary atrophy; 7 had normal discs.

The average length of time for an appreciable change in the swelling to make its appearance after the operation was two days. The average length of time for the swelling to disappear entirely was six weeks. These periods bore no fixed relation to the height of the swelling, but as a rule, the higher the swelling the slower its recession. In one case with the swelling 6 D. a slight edema was to be found eight months after operation. In two cases with swelling of less than 2 D. there was not a trace to be found forty-eight hours after operation. As a rule the edema of nerves in which atrophy was marked disappeared more rapidly than in those without. The swelling in four eyes of two patients was only lessened but not cleared up by operation. These two patients had large malignant growths and high tension was soon re-established.

The ultimate damage to vision was much greater in those cases in which large exudative masses and definite proliferative changes in the cup, on the surface of the disc and in perivascular lymph spaces, could be detected before operation.

Fifty-nine eyes showed increased vision subsequent to operation; in 65 the vision remained the same and in 16 vision continued to fail. Of the 65 in whom the vision remained the same, 29 had normal vision, 24 were blind, and 12 had vision varying from 20/30 to light perception. Fourteen eyes with normal vision subsequent to operation were not tested before; 2 eyes blind subsequent to were not tested before; 18 eyes tested before but not after operation.

Of those operated on and benefited, 2 without light perception regained it; 2 able to count fingers at six inches recovered vision of 20/40 and 20/20, respectively; 14 with vision of 20/200 or slightly less, the improvement varied from only a nominal gain to perfect sight. Of those showing a loss in vision subsequent to operation, 6 became blind; of this number only 2 had useful vision prior to operation. The cause of the change in these cases was, we think, quite clear, pressure on the tracts and shrinkage of the new connective tissue formation of the disc. In these cases, we feel confident, the ultimate result would have been the same whether they were operated on or not. Eight eyes in patients refusing operation subsequently became blind. Partial or total atrophy of the optic nerve was noted on admission in 52 out of the total of 182 eyes. To review briefly: Of 130 eyes in which the record before and after operation could be compared, 59 had increased vision, 16 decreased and 65 remained the same.

DR. T. B. HOLLOWAY, Philadelphia: Unfortunately in many cases of papilledema resulting from brain tumor, the intraocular examination has been summed up in a statement that there existed papilledema without any reference to its characteristics. If the question of the greater amount of swelling of the disc being homolateral or contralateral to the lesion is ever to be accurately determined, it seems to me that we must make and record certain definite ophthalmoscopic measurements, that have been elsewhere referred to.

As is well known, most statistics in the past have shown that the disc showing the greatest swelling is homolateral to

* A long article on this subject by Drs. G. E. De Schweinitz and T. B. Holloway, Philadelphia, appears in the Transactions of the Section on Ophthalmology, 1909, but will not appear in THE JOURNAL.

the lesion. A rather hurried search of the available cases recorded by Dr. De Schweinitz and myself, excluding those observed in the university and orthopedic hospitals, shows that the greatest swelling was homolateral in 50 per cent., contralateral in 20 per cent., and of equal extent in 30 per cent. of the cases.

In the few cases in which it was definitely stated which eye was first affected, it was found that the homolateral eye was, in the majority of cases, the first to show evidence of a papilledema. Likewise, in the majority of the cases, when the case histories revealed a record of the vision, it was found that the eye having the greatest impairment of vision was homolateral to the growth.

In reference to the rarity of papilledema in myopic eyes, I can recall but two cases that I have seen, and both of these were under observation at the Orthopedic Hospital in the service of Dr. Wharton Sinkler. In neither case was the myopia over 5 D. Paton refers to the macular fan which is seen in many cases of brain tumor as being due to a passive edema, in contradistinction to the macular fan seen in cases of nephritis which he refers to as being due to what he terms an active edema.

Recently I have had under observation a case associated with marked macular edema in which a typical macular fan developed, which was indistinguishable from that seen in the two conditions above referred to. Three weeks after the receipt of the injury, the first spots appeared in the temporal side of the fovea, in the direction of the greatest edema, and from three to four weeks later the figure was complete. The lesion responsible for its development was a penetrating wound of the eye from a piece of steel, the wound of exit being at the outer edge of the macular region. In reference to the subsidence of papilledema after the relief of intracranial tension in cases of brain tumor, but very few of the cases observed at the university and orthopedic hospitals have shown any distinct reduction in swelling prior to the third day. In this connection, it is interesting to refer to the unusual case observed by Thomas and Cushing. Prior to the operation the discs were reported as atrophic. The morning following the operation the patient developed symptoms of compression and an ocular examination revealed a papilledema of 4 D. A large clot was removed from the site of operation, after which the retinal edema began to subside in a few hours and by the second day the atrophic discs were as clear as before.

This case is analogous to the cases reported by Harlings Jackson, de Schweinitz and A. G. Thompson and E. R. Williams, although in these last named cases, the papilledema affected nerves that were completely atrophic.

DR. EDWARD STIEREN, Pittsburg: Since my report last year (*Ophthalmic Record*, March, 1908) of three cases of choked disc relieved by exploratory operation I have observed one case, in a woman, in which the general symptoms—headache, vomiting and staggering gait—were relieved by a decompressive operation but in which the vision is progressively becoming worse. The case is one of undoubted cerebellar tumor, under observation for about a month before a right temporal decompressive operation was performed by Dr. J. J Buchanan. Before operation R. V. = 6/80, L. V. = 6/16 — with 8 and 7 D. elevation of the discs, respectively. No perceptible decrease in the papilledema could be observed for two weeks following the operation, when the discs gradually receded, although well-marked signs of optic neuritis persisted, optic atrophy intervening and steadily progressing. At present R. V. = 2/200, L. V. = 6/60 eccentrically. I am inclined to attribute the disappointing result in this case to either a cancer toxemia of the optic nerves, the patient's general appearance suggesting a cancerous cachexia, her damaged third nerves being unable to combat the onslaught of toxic irritants. Or, as Dr. Cushing suggests in this class of cases, it may be due to direct involvement of the optic tracts. In the case reported by me and quoted by the essayists as the patient having lived a little less than five months after operation, I desire to say that instead the man lived more than three years after operation, which, in view of the enormous size of the growth attained, as shown by the illustration, is remarkable.

DR. R. L. RANDOLPH, Baltimore: I was struck with the fact that the results of the experiments of Drs. Frazier and de Schweinitz were entirely at variance with those of Drs. Bordley and Cushing. I should like to ask Dr. Frazier what animals were employed, and whether these animals and the technic were similar to those used by Bordley and Cushing. Furthermore, I should like to know whether he has ever seen in animals anything approaching the picture which we see in human beings and which is called choked disc, and, if so, whether it resulted from high tension alone within the brain or whether it resulted from high tension plus something else. Personally, I have always held that high tension within the brain was a potent factor—probably the most potent factor—in the production of the so-called choked disc, but I believe that there are other essential factors, in the absence of which, no matter how high the tension, choked disc will not be seen.

DR. WILLIAM H. WILDER, Chicago: I should like to mention some points in a case I have under observation, which illustrated the correctness of the statements of Dr. Spiller relative to the effect of the hernia of the brain that occurs after decompression operations. The case is that of a young Scandinavian about 20 years of age who came into my service at the Illinois Eye and Ear Infirmary last winter. He gave a rather indefinite history of headaches, no vomiting, and no marked symptoms of brain tumor. There was an apparent mental dulness. There was a marked papillitis, about 7 D. of swelling, with edema and slight hemorrhages in the surrounding retina. Dr. Hugh T. Patrick, who examined him, agreed that there was probably an intracranial growth, but could discover no localizing signs, although he suspected that the tension was on the left side and advised a decompression operation.

Dr. A. E. Halstead operated, removing a large piece of bone from the parietal and temporal region. The bone was extremely thin from pressure, and after section of the dura the brain protruded to such an extent that the flap was replaced with difficulty. The shock of the operation was great. Soon after recovery, the patient began to show a weakness of the right hand, and then paresis, and finally paralysis of the right hand, arm and lower muscles of the face. There was also ataxic aphasia. This condition lasted fully three months and was probably caused by the pressure of the motor area of the brain against the margin of the opening in the skull. Gradually the man recovered in part his speech, and also the power of his right hand and arm. The swelling of the nerve head receded, reaching about 4 D., which it was when I saw him about five weeks ago, with the vision about 20/50, as good as when I first saw him.

It seems to me that there is something more than intracranial pressure in the etiology of these cases of papillitis or papilledema. The theory as stated by Leber that the products of metabolism in the tumor, circulating in the lymph channels, and so coming in contact with the nerve and exciting a true neuritis, associated, it is true, with edema, is a very plausible one. A patient presented at the Chicago session by Dr. Peter Bassoe on whom Dr. Bevan had operated was possibly one of this kind. The man had a pronounced papillitis with 7 D. of swelling, which was not reduced by the decompression operation. At a second operation the tumor was located and removed, with disappearance of the papillitis and restoration of vision.

DR. WILLIAM G. SPILLER, Philadelphia: I fully believe that decompression is a very valuable means of saving sight and of affording relief from certain symptoms, but I think it an operation which should not be performed hastily, and without careful study of the patient. It seems so simple to bore a hole under the temporal muscle that we may be inclined to advise it without due consideration. I had a patient who had grave symptoms of brain tumor, and I advised decompression. The man sank into a marked stupor, and has remained in that state ever since. The effect of decompression in this case is uncertain. Following decompression we may have graver symptoms from hemorrhage from a bleeding vessel which has escaped the surgeon's attention, or which has occurred after the wound has been closed; and hemiplegia may develop.

The hemiplegia which occurs in these cases develops soon after the operation and should lead to an exposure of the wound and a search for the clot and attempt at its removal. But, aside from that, there is a hemiplegia that develops in certain cases later in the course of the disease, perhaps a week or two after the operation. That form of hemiplegia is not always caused by hemorrhage either on or in the brain. In the past few weeks I have had opportunity to examine a brain from such a case, and I found that the hemiplegia was caused by an occlusion of the blood vessels by a hernia that occurred: the brain protruding through the opening in the bone and causing pressure directly on the vessels. We are inclined to think that the hernia produced after decompression is indicative of the growth of the tumor, and to say that the hernia shows exactly how much we have benefited the patient by relief of pressure, as otherwise the tumor would have grown and possibly have caused death. This conclusion is not invariably correct, but is correct in certain cases. The hernia may occur from causes we do not understand. While, therefore, I believe fully in decompression in suitable cases, and feel that it may be of great use, I also feel that we must study every case carefully before advising it.

DR. ALBERT E. BULSON, JR., Fort Wayne, Ind.: During the last eighteen months I have had four patients on whom the decompression operation was done. In two of the cases I was much gratified with the results of the operation so far as its effect on the vision was concerned. In all the cases a competent neurologist was consulted with the idea of making a diagnosis of the probable location of the tumor, but in two of the cases it was impossible for him to arrive at any definite conclusions, though he agreed as to the necessity for a decompression operation to save the vision, which was very rapidly failing. In one of the cases there was, within a few days following the decompression operation, an increase in the vision which was retained for several months. In this case, as well as in one other case, it was found later on autopsy that the tumor would in all probability have been located during the patient's life had the development of localizing pressure symptoms caused by the growth of the tumor not been disturbed by the decompression operation. It is therefore presumed that a little delay in the performance of the decompression operation might have resulted in prolonging the life of the patient through the localization and removal of the tumor. The decompression operation should be performed with a view of removing the tumor if possible, though with rapidly failing vision due to intracranial pressure and no localizing symptoms, the decompression operation in the silent zone is indicated and should be performed with a view of saving vision. We should always take into consideration the fact that the patient's life is in danger and the saving of vision is not as important as the saving of life. Some tumors can be removed and the life, as well as the vision, saved for many years.

DR. B. A. RANDALL, Philadelphia: Out of a limited experience in this matter I would cite a recent case referred by Dr. S. Z. Shope of Harrisburg, Pa., which is interesting because the edema was extreme—8 or 9 D. There had been the question, also, if the rapidly increasing swelling could be due to lesion of the nasal accessory cavities. The eyesight was rapidly declining and there was no marked involvement of the nasal cavities. The patient, a girl of 20, had a clear history of specific inheritance, but no stigmata; and there had been a bad fall with a possibility of cystic growth. The neurologist regarded it as a case of neoplasm of the right motor region and urged not only decompression but exploration as to the presence and operability of the growth. Making a good-sized osteoplastic flap, I found great tension of the dura and on incising it, there was marked protrusion of the brain substance. I relieved this greatly by lumbar puncture, having had much question whether lumbar puncture would not have been safe and adequate. I then exposed and examined the motor convolutions more freely, and seeing and feeling no growth, sutured the dura and replaced the flap. The case had been admirable in its outcome thus far, but done on April 29 it is too soon to know the issue. Vision is restored in the left eye, the edema is almost gone in both, but the field is somewhat narrowed on the right and the lesions near the macula, simulating those of albuminuric retinitis, interfere greatly with its recovery. Whereas she had seemed stuffed up by small doses of iodid, she is now taking 33 grains three times daily and all symptoms are ameliorating. This seems merely a case of relieving destructive pressure until we could get the influence of our medication, unless we are wholly in error as to the specific nature of the lesion.

DR. NELSON M. BLACK, Milwaukee, Wis.: As to not finding choked disc following head injuries, I would like to state that through the kindness of Dr. Charles Lemon, surgeon of the Milwaukee Electric Street Railway, I have had the opportunity of making ophthalmoscopic examination of cases of head injuries following street-car accidents. In one case there was a distinct choked disc of about 1½ D on the side opposite to the injury and a complete blurring and loss of contour of the disc margin on the side of the injury. This entirely disappeared within four or five days after decompression. In a second case, there was decided blurring of the disc margins equal in both eyes, which gradually cleared up in about two weeks; the temporal side of the disc clearing first; no decompression was done. In a third case, a man fell from a scaffold about fifty feet, landing on his head and shoulders; he was brought into hospital unconscious and when placed on the operating table stopped breathing. Artificial respiration was instituted and a decompression operation immediately done. As soon as the dura was opened a considerable amount of pinkish cerebrospinal fluid gushed out and the patient began to breathe. The ophthalmoscope showed nothing abnormal beyond decidedly hyperemic discs; but the decompression was done within an hour following the injury, so there was hardly time for the discs to become choked.

DR. G. E. DE SCHWEINITZ, Philadelphia: The existence of choked disc does not always indicate operative interference. Naturally, prolonged and careful study must always be given to each patient before he is submitted to operation, and all means at our disposal which will help to establish a diagnosis should be brought into requisition. This is particularly true in such cases as may be due to syphilis, and the serum reaction for the detection of this infection, not only that of Wassermann, but its substitutes, so well discussed in the Section on Nervous and Mental Diseases, will doubtless prove of great service under such conditions. Moreover, each one of us should study most carefully the visual field phenomena to which Bordley has made reference. You have heard from him the interesting observations which he and Dr. Cushing have made, now, to be sure, only in their earliest stages, and it behooves all of us, whenever opportunity presents, to undertake similar examinations.

It has been known for many years that such alterations of the visual field occur in cases of brain tumor, and other organic diseases, but so far as I am aware, no such study has been given the subject as that which has been accorded to it by Dr. Bordley and Dr. Cushing, nor have the results which they have reached ever before been published.

While I am satisfied that one of the factors in the production of papilledema is increased intracranial tension, and am inclined to believe that it is the most important factor, I feel sure that it can not be the only one. In our experiments to which Dr. Frazier has made reference we never succeeded in the living eye in producing anything like the ophthalmoscopic picture of papilledema when a pure physiologic salt solution was used in subdural injections. On the other hand, if we added irritating substances to the fluid, formaldehyd, iodin, etc., we did succeed in producing, not a very pronounced but none the less a definite swelling of the optic nerve. Different results have been reached in the Johns Hopkins Hospital by Drs. Cushing and Bordley. Sometime or other we propose to exchange laboratory visits in order to see wherein either our technic or our results have differed.

DR. CHARLES H. FRAZIER, Philadelphia: I have been asked whether we followed in the experimental work in papilledema the technic used in the Cushing-Bordley experiments. I am not familiar with the technic referred to; we purposely did not follow the method of previous investigators because we

wanted to conduct our experiments with an open mind and entirely uninfluenced by the results of previous observers. As Dr. de Schweinitz has said, intracranial tension must be an etiologic factor; while admitting this, we are sure that it is not the only nor even the essential factor. Since the report was published, we have added to the physiologic salt solution certain irritating substances such as iodin and formaldehyd, and we are led to believe that these substances have some effect on the etiology of papilledema independent of intracranial tension. We have never yet seen papilledema in the dog similar to that observed in the human subject under analogous conditions.

Dr. Spiller cautions us against too frequent and too hasty resort to decompression. On the other hand, the operation should not be put off too long. I feel I have altogether too many patients absolutely blind, whose vision might have been preserved. Selecting at random for student demonstration five patients already operated on, I found in three out of the five that vision had been practically lost. From six weeks to two months is long enough to wait for improvement under the iodids and mercury, for the localization of the tumor, or for the confirmation of the diagnosis. If at the expiration of this time the papilledema is stationary, or increasing, side decompression should be practiced without further delay.

I have been asked whether, rather than resort too soon to decompression, we should not wait for the development of such symptoms as would suggest the situation of the tumor. I should say emphatically no. At any time after the decompression the radical operation may be performed and just as soon as focal symptoms make their appearance. The preliminary palliative procedure which relieves headache and vomiting and preserves vision, does not preclude the possibility of subsequently operating for the removal of the tumor. In some cases it delays development of the symptoms, but we are justified in operating early to relieve the subjective symptoms, especially when we know that in not more than one case in ten will the tumor prove to be operable.

A word as to the undesirable results of decompression: Dr. Wilder has referred to a case in which, after decompression on the left side, hemiplegia and aphasia developed. I have had a similar experience, but the hemiplegia and aphasia entirely disappeared in the course of a few weeks. These disturbances are often associated with a sudden increase in the size and tension of the hernia which forms at the site of the opening—a phenomenon which I have attributed to the disturbance of the circulation in the herniated portion. The pressure of the margins of the bony opening interferes with the return venous circulation and this in turn is followed by edema. It might be said in this connection that we always decompress on the right side unless there are some contraindications for so doing. The right side, as pointed out by Sänger, is the site of election because it uncovers the silent area of the brain in all cases.

Some reference was made to observations which we have made in the relation of papilledema to intracranial trauma. I do not mean to say papilledema of traumatic origin does not occur, for I know it does in a few instances, but much more infrequently than we have been led to believe by certain published statements. But papilledema of traumatic origin is only transitory and will subside without surgical intervention. The routine resort to operation, within twenty-four or forty-eight hours of the accident, is neither necessary nor justifiable. This point was strikingly illustrated by a case under my observation this year. The man had evidently a basal fracture with occurrence of papilledema, but as the man's life was not threatened, we dismissed at once the question of operation, and within a week of the injury the patient developed paralysis of face and arm on one side. We then explored and found in the cortex a small blood clot, the removal of which relieved the focal symptoms. In this case had we resorted to immediate decompression, the man would have had to have two operations.

Pasteurization.—This does not mean simply the heating of milk; the subsequent rapid cooling is a very important part of the process.—M. J. Rosenau, in *Annals of Medical Practice.*

Clinical Notes

A NEW METHOD OF TENDON-SHORTENING

WITHOUT SEVERING THE TENDON AND WITHOUT THE USE OF NEEDLE AND SUTURE *

H. H. BRIGGS, M.A., M.D.
ASHEVILLE, N. C.

The method is applicable to any case in which shortening of an ocular muscle is indicated. The principle involved is the looping of the tendon and maintaining the shortening thus attained by means of a silver link (Fig. 1) clamped over the loop and retained there until inflammatory adhesion takes place between the advanced portion of tendon and the sclera. The link, elliptical in

Fig. 1. Silver link and clamp forceps for use in tendon-shortening operation (forceps three-fifths size; link full size).

shape, is made of silver wire (No. 20, Brown and Sharpe Standard). It is long enough to extend across the tendon, and wide enough to allow a small tendon hook with the looped tendon and overlying conjunctiva to pass through its lumen. The major axis of the link should be about 5 mm., the minor about 2 mm. Pure silver wire gives the proper amount of resiliency, retains its compressed shape, is easily removed and seems to serve better than an alloy. To insure against the tendon retracting through the link, burrs may be punched on the inner surface of the link to act as barbs against the pulling action of the tendon.

A clamp forceps (Fig. 1) is used to grasp the silver link in its jaws and hold it in position over the tendon until the loop of tendon and conjunctiva is drawn up through the link, when by compressing the forceps the link is compressed sufficiently firm over the loop to maintain the loop the required time after the forceps has released the link and left it *in situ.* Passing entirely across the approximating surface of the jaws near the tips are transverse grooves deep enough to hold the long parallel sides of the silver link. The length of jaw to the angle is sufficient to accommodate the longest loop of tendon that may be desired. A ratchet maintains the jaws in any compressed position over the link.

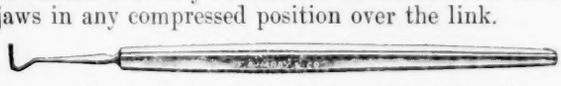

Fig. 2. Special tendon hook (three-fifths size).

A special tendon hook (Fig. 2) is used, differing from the ordinary small tenotomy hook in that its shank, 6 mm. above its angle, is bent backward in the plane of the hook at an angle of about 15 degrees. This bend allows the handle of the tendon hook to be held out of the operator's line of vision, and at the same time the hook may remain parallel to the tangent plane of the eye at the site of operation. The hook should be short enough to pass through the major axis of the link, and yet sufficiently long and strong to pull the tendon through the link, overcoming the pull of the opponent muscle, which may or may not have been previously tenotomized.

For removal of the link a scissors forceps with wedge-shaped blade above and flat blade below (Fig. 3) is

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* Read in the Section on Ophthalmology of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

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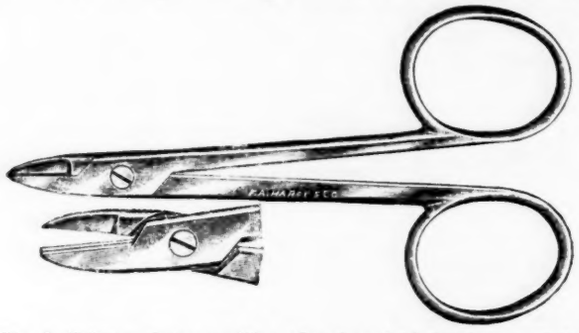

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Subsequent History.—She began to improve immediately. Two months after the operation she walked about on crutches; twelve months later she was able to get about the house without the aid of crutches, and now, twenty-six months after the operation, she is able to walk long distances without any assistance whatever. She can flex, rotate, adduct and abduct the limb freely; in fact, she now has nearly 90 per cent. of motion, which before the operation was zero. The limb is 3½ inches longer than at the time of operation. Skiagrams taken twenty months after resection show a fairly well-formed new head and neck, growing in the direction of the original head and neck, and these lie in normal position with the acetabulum. Her general health is splendid and she has gained twenty-five pounds.

CONCLUSIONS

The good results obtained in this case as well as in twelve other cases[1] I attribute to the technic of the operation and of the after-treatment as I carry them out. This, in the main, consists in the complete removal of the diseased bone and the elimination of fixed dressings of any kind in the after-treatment. It is my opinion that plaster-of-Paris casts, splints and other fixation appliances commonly used in these cases after operation are responsible for the many bad results fol-

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Ascoli[4] studied the occurrence of egg albumin in the urine after eating raw eggs, it having already been shown by Uhlenhuth[5] that by prolonged feeding of egg albumin to rabbits specific precipitins are developed in their blood, thus indicating the passage of egg albumin directly into the blood. As early as one to two hours after injection of egg albumin into rabbits, Ascoli found that the urine reacted with the appropriate antiserum for both egg albumin and rabbit serum albumin, the same result being obtained somewhat more slowly when the albumin was fed by mouth. In healthy men the presence of egg albumin in the blood could be demonstrated by the precipitin test as early as one and three-quarters hours after eating raw eggs, while in the urine both egg albumin and serum albumin can be demonstrated by the same method. Nephritics also excrete both egg albumin and serum albumin in the urine after eating raw eggs, according to the precipitin test. On account of the demonstration of the presence of both kinds of proteins in the urine, Ascoli concludes that the egg albumin when present in the blood so injures the renal cells that not only the foreign egg albumin, but also the normal serum proteins, escape into the urine. At times egg albumin may be demonstrable in the blood without the presence of any protein in the urine, a fact in harmony with the common observation that some healthy persons will show no albuminuria after eating even large quantities of raw eggs. In subsequent papers, Ascoli[6] reported observations to the effect that not only egg albumin, but also the proteins of beef and chicken, can be demonstrated in the blood and lymph shortly after these substances have been taken in the food; and when these proteins cause albuminuria the precipitin reaction will demonstrate in the urine not only the foreign protein but also the native serum proteins. Therefore, it would seem that foreign proteins are eliminated in the urine only through the injury which they produce in the kidney, and this injury makes it also temporarily permeable to the normal serum proteins. The finding of egg albumin by the precipitin test in human urine after eating raw eggs has been confirmed by others,[7] but so far as can be learned the presence of blood proteins in the urine in alimentary albuminuria has not been investigated except by Ascoli.

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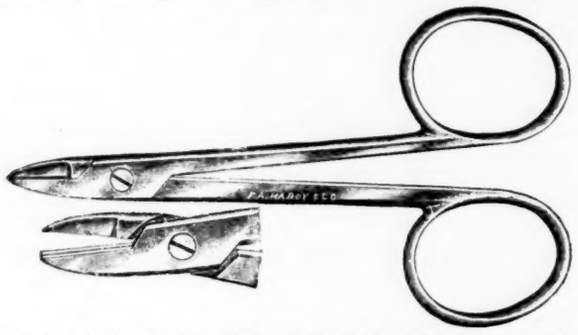

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More recently Wilson[9] has applied the fixation of complement test to the detection of the nature of the albumin in human urine. This reaction is as specific as the precipitin reaction, and much more delicate, a reaction being obtained with as little as 0.00001 c.c. of human serum. Applied to urine it was found to be from 10 to 100 times more delicate than the nitric acid test, so that it was possible by this means to detect albumin in urine when there was no sign of albumin by chemical tests. He finds that the main protein element of albuminous urine has a human antigen, and therefore is presumably human protein, but he seems not to have sought for the presence of other proteins in either nephritis or alimentary albuminuria.

There exists not only a scientific interest in this question of alimentary albuminuria, but there is also some practical bearing, for it might at times be desirable to ascertain whether the albumin in a given sample of urine represents food protein or blood protein. While the precipitin test is of distinct value, yet its application is not readily made without more or less experience in immunologic work, and requires a good deal of time and labor in immunizing animals and preparing the specific serums. It therefore seemed possible that the anaphylaxis reaction might be found serviceable in this connection, in view of its simplicity and its delicacy, since a guinea-pig may be successfully sensitized with a dose of one-millionth of a gram of egg albumin, or even less. One has only to inject the urine, either fresh or preserved by chloroform, into the peritoneal cavity of a medium sized guinea-pig, best weighing 300 and 500 grams, and two weeks or more later inject intraperitoneally the sort of protein suspected of being in the urine. For the first or sensitizing dose of urine, from 1 to 5 c.c. according to the amount of albumin present, is a suitable dose; for the intoxicating dose, from 2 to 5 c.c. of ascites fluid or human serum, or a corresponding amount of egg white, is a proper amount.

The first experiment performed was as follows:

Experiment 1.—A healthy young man, whose urine contained no albumin by either the heat or the nitric acid tests, took three raw eggs for breakfast (8 a. m.), after having abstained from food containing eggs for three days. Urine passed at 10:30 a. m. contained no albumin by either heat or nitric acid tests. At 1:15 p. m. six more raw eggs were eaten. Urine passed at 1:30 p. m. contained no albumin. Urine passed at 3 p. m. gave a barely perceptible reaction for albumin; that passed at 6 p. m. gave a distinct reaction, and 8 p. m. again only a trace could be detected. Guinea-pigs were injected with doses of from 10 c.c. to 1 c.c. of each of these samples, and 16 days later they were again injected with either egg white or human ascites fluid.

The results were as follows: Injection of egg albumin into these pigs sensitized with urine caused no symptoms whatever, no matter what sample of urine or what dose had been used in sensitizing; in all, this was done to fifteen guinea-pigs with negative results. Neither did the specimen of urine containing the largest amount of albumin (6 p. m. sample) cause anaphylaxis symptoms when injected in 10 c.c. doses into guinea-pigs that had been sensitized with egg albumin two weeks previously, although the same pigs were killed by egg albumin injected 24 hours after the urine injection. However, when other pigs that had been sensitized with this urine were injected with 3 c.c. doses of human ascites fluid, the results were striking. The pigs sensitized with the urine passed before eating the eggs showed no symptoms whatever, but those receiving urine passed later, even the 10:30 a. m. sample which showed no albumin by the heat or nitric acid tests, all reacted violently to the human proteins of the ascites fluid. Most of the animals died, and the remainder were severely ill with the characteristic symptoms of the anaphylaxis reaction. The pigs that had been tested with egg albumin, which caused no reaction, reacted to a subsequent dose of ascites fluid quite as violently as the pigs which had received no egg albumin, which shows the specific character of the sensitization for human serum proteins.

These experiments indicate that the proteins present in the urine of this particular individual, after eating a large amount of egg albumin, are serum albumin, and that no unaltered egg albumin has escaped in the urine.

This result was not in harmony with the finding of Ascoli, who, as stated above, finds that the urine in elimentary albuminuria reacts with antiserums for both human protein and for egg albumin. It has, therefore, been repeated with three other healthy individuals with exactly the same results, as shown by the following abstracts of the experiments:

Experiment 2.—A healthy young man went without eggs for a day, then took six raw eggs for breakfast (8 a. m.) and again four more eggs at 12:30 p. m. Urine passed before eating the eggs, and also that passed at 12 o'clock, gave no reaction for albumin with either the nitric acid or the heat tests. At 4 p. m., however, it gave a very faint reaction for albumin. Guinea-pigs were sensitized with urine from each of these specimens, in doses from 1 to 10 c.c., and 16 days later were injected with either egg albumin (crystallized) in 0.1 gm. doses or human ascites fluid in 3 c.c. doses. None of the pigs receiving the egg albumin showed any symptoms whatever, while all the pigs receiving ascites fluid reacted typically, and in most instances severely, although none died. The pigs that had failed to react with albumin, when injected 24 hours later with ascites fluid reacted typically, showing conclusively that the sensitizing substance in this urine was not egg albumin, but human protein.

It is to be noted that the guinea-pigs which received the urine passed before eating the eggs also reacted to ascites fluid, although this urine gave no sign of reaction for albumin by either heat or nitric acid.

Experiment 3.—A healthy man, aged 33, who had been taking arsenic in small doses (1/40 grain t.i.d.) for several weeks without showing any trace of albumin in the urine, took the whites of 6 raw eggs for breakfast at 8 a. m. Specimens of urine were collected at 10:30 a. m. and 12:30 and 2:30 p. m.; only the last gave a possible reaction for albumin and this was questionable. As before, guinea-pigs in pairs were injected with samples of each specimen of urine, in doses from 2 to 10 c.c., and 20 days later they were injected with either egg albumin (0.1 gm. doses) or ascites fluid (3 c.c. doses). As before, none of the pigs injected with egg albumin reacted at all, while all the pigs injected with ascites fluid, including those that failed to react to egg albumin, reacted severely and typically, although not fatally. A specimen of morning urine passed two days after eating the raw eggs, and which showed no trace of albumin, in 5 c.c. doses sensitized guinea-pigs to ascites fluid so that they reacted typically but not severely.

Experiment 4.—A healthy young man, aged 29, whose urine showed no traces of albumin, ate the whites of six eggs at 7:30 a. m. Urine passed at 12:30 p. m. and at 5 p. m. showed no traces of albumin by the nitric acid or heat tests. Six guinea-pigs were injected with the urine passed at 12:30 and at 5 p. m. Twenty days later three were injected with 0.1 gm. egg albumin each and showed no symptoms; three were injected with human ascites fluid, and all reacted typically, those having received the 12:30 p. m. specimen more severely than the one sensitized with the 5 p. m. urine. The pigs that had failed to react to egg albumin were injected the next day with ascites fluid, and reacted exactly the same as the pigs that had not been given egg albumin. Of two pigs sensitized with the urine passed before eating the eggs, one did not react distinctly to ascites fluid, the other reacted slightly.

Experiment 5.—Two specimens of albuminous urine were obtained from nephritics, one containing but a trace of albumin, while the other gave a dense coagulum on heating.

9. Jour. Path. and Bact., 1909, xiii, 484.

Guinea-pigs were injected with doses of these urines in quantities ranging from 10 to 0.1 c.c., and 19 days later they were injected with egg albumin or with ascites fluid. As before, the egg albumin had no effect, while the ascites fluid caused severe, frequently fatal intoxication, showing that the ordinary albuminous urine of nephritis contains human protein.

One fact noticeable in all the foregoing experiments was that animals which received 10 c.c. sensitizing doses of urine reacted less violently to the intoxicating dose of ascites fluid than the animals that received smaller doses of urine. This can not be explained as due to excessive quantity of protein in the sensitizing dose, for it was noticeable when the injected urine contained too little albumin to react with nitric acid. It is possible that urine, as well as other body fluids, contains substances that have an inhibiting effect on the anaphylaxis reaction, for in experiments performed with crystallized egg albumin and natural egg white it was found that unpurified egg white produced the reaction only when used in much larger doses than would be expected from its content of albumin;[10] contrasted with crystallized egg albumin the unpurified mixed proteins of egg white are about one-fifth as toxic for sensitized guinea-pigs, and but about one-hundredth as active in sensitizing.

A number of experiments were performed to determine the presence of protein in normal human urine by means of the anaphylaxis reaction. Morning urine from five healthy young men was injected into guinea-pigs in 1, 5 and 10 c.c. doses, and after an interval of three weeks human ascites fluid was injected in doses of 3 c.c. In nearly all cases the animals showed typical anaphylaxis symptoms of greater or less severity, but in only a few instances was the reaction fatal. From this it would seem that minute quantities of protein are present in the urine of normal individuals, and that this protein, which is too small in amount to be detected by the heat or nitric acid tests, possesses the specific properties of human proteins, like the proteins present in albuminuria.

SUMMARY

Although a few observers report having found evidence of the presence of specific food proteins in the urine in alimentary albuminuria by means of the precipitin reaction, yet by the anaphylaxis reaction the results are found to be quite different. Guinea-pigs sensitized with urine from four healthy persons with experimental alimentary albuminuria, produced by eating raw eggs, and with urine from two cases of nephritis, reacted typically and severely to subsequent injections of human ascites fluid, and not at all to egg white or to egg albumin. In view of the extremely minute quantity of protein necessary to sensitize guinea-pigs to the homologous protein, these results speak against the prevalent view that the albumin present in the urine in alimentary albuminuria is the same protein that has been taken in the food. Either the ingested and absorbed protein is altered to the extent of acquiring specific human properties before being eliminated in the urine, or else it is not excreted at all, but injures the kidneys slightly and transitorily by overloading the blood with nitrogenous waste products, so that they become permeable to the normal proteins of the serum. If the results of the anaphylaxis reaction alone were considered, the latter explanation would seem to be the most probable, but several observers report that the urine in alimentary albuminuria reacts with specific precipitins for the food proteins. This discrepancy between the results of experiments with the precipitin and the anaphylaxis reactions may be interpreted as meaning that the two methods are not of equal value in solving the problem, or it may be suggested that the precipitin reaction is given by food proteins that have been slightly altered during the processes of absorption and excretion so that they will not sensitize guinea-pigs to the original protein. However, experiments to be reported elsewhere show that digestion of proteins very quickly destroys their property of reacting with precipitins, while the anaphylactic properties of protein resist destruction by either peptic or tryptic digestion for a remarkably long time.

In any case, there can be no question that even in alimentary albuminuria, as well as in nephritis, the urinary proteins are chiefly, perhaps exclusively, human proteins, and, therefore, presumably derived from the blood rather than from the food. Whether any of the unaltered food protein reaches the urine is doubtful, because of the disagreement on this point of the anaphylaxis reaction and the precipitin reaction. Further comparative studies are needed to clear up this point, both because of the desirability of knowing just what relation the precipitin and anaphylaxis reactions have to each other, and because of the importance to the physiologist of definite information as to whether unaltered food proteins can pass through the intestinal wall.

On account of the delicacy of the anaphylaxis reaction it shows the presence of human proteins in urine from normal persons, which gives no reaction for albumin by the heat or nitric acid tests.

10. Jour. Infect. Diseases, 1908, v, 456.

A FEW POINTS ON PROPHYLAXIS OF TUBERCULOSIS

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It is important to prevent future generations from contracting tuberculosis by a thorough course of preventive medicine and hygiene taught in our public schools. Germs are everywhere, and it is essential not to disseminate the pathogenic varieties. Expectoration in the open air should not be tolerated.

We must treat properly the cases already under our observation. Individuals suffering with tuberculosis should be cautioned against marrying. If the married state hastens the progress of the disease, it is natural to believe that the offspring from a union of tuberculous individuals would also have a tuberculous tendency, very much as the children of inebriates have a tendency toward inebriety. The consensus of professional opinion, however, says that tuberculosis is not hereditary.

It seems reasonable that the system may be fortified to resist disease by conservative measures, such as the following:

1. Regular, temperate and cleanly habits.
2. Abundant sunshine and fresh air.
3. Good nourishing food.
4. Sufficient rest.

1. *Regular Habits.*—It is essential to observe regular and temperate habits and modes of living. A shiftless vagabond, exposed to the elements, depending on the kindness of charity, or a society rake living in the excesses of overabundance, will be more likely to contract tuberculosis than will active, industrious and sober individuals. Persons afflicted with what are supposed to be incurable diseases sometimes give themselves up to reck-

less riotous revelry in order to drown their troubles. This is a great mistake. The reason is self-evident.

2. *Sunshine and Fresh Air.*—The average individual in our cities gets far too little systematic exercise in the open air during favorable weather. Clerks and shopkeepers are housed from morning until night, year in and year out, in poorly ventilated and stuffy apartments, where the atmosphere is stale and charged with noxious and depressing exhalations from crowds. The majority of the working class shut up in shops, factories, stores and offices are constantly inhaling clouds of germ-laden dust. These individuals furnish a large portion of cases of tuberculosis. Indians have long been known to be susceptible victims of tuberculosis, not because they live in the open, but because of their lives in the dampness of rivers, canoeing, fishing and hunting. This prolonged exposure lowers lung resistance and favors irritation of the bronchial mucous membrane, paving the way for invasion of tubercle bacilli. This should put us on our guard in treating these sufferers. These patients can not very well be treated advantageously who persist in staying at home if the surroundings are damp. A moderately elevated location among the hills where the air is bracing and dry should be chosen for tuberculous patients. The tonic effect of dry ozone to be had among the pine hills and forests aids materially in arresting tubercular lesions. It assists Nature in the reconstructive process; in forming a barrier of fibroconnective tissue around the lesions, in limiting the extension of the destructive process and eventually obliterating it, while a new defensive army of phagocytes encounter the enemy face to face. We can not all live where it is best and most healthful for us, but those especially predisposed to disease should consider the matter of location seriously.

3. *Nourishing Food.*—This is of paramount importance in maintaining bodily strength. Food should be selected which contains the greatest possible amount of nourishment and reconstructive power, and which at the same time agrees with the digestive function of the individual in question. A reasonable amount of food of desirable quality should be selected rather than the greatest quantity for the money. Time should be taken to masticate it thoroughly, thereby avoiding distressing gastrointestinal disturbances. It can not be otherwise than harmful to impose the work of the teeth on the stomach. Gormandizing and gluttony, which often give rise to acute indigestion, should be avoided.

4. *Rest.*—This, too, is an important factor, yet is too often overlooked. The tired and overworked body needs re-energizing by refreshing sleep. Some individuals can get along on much less sleep than others. If one gets, on an average, eight hours' quiet and undisturbed rest each night, and observes the rules of hygiene already mentioned, one's vital powers should be amply reinforced to ward off almost any disease, even tuberculosis.

FOOD-POISONING BY CHICKEN SANDWICHES

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A few weeks ago eighty-three people gathered at a new barn seven miles north of North Platte at a dance. At 1 o'clock in the morning they were served with a lunch consisting of chicken sandwiches, cake and coffee. The chicken had been prepared the day before by being cooked, cooled and run through a sausage chopper. The weather was very hot and humid. The chopped chicken was kept over twenty-four hours before the sandwiches were made and eaten. The next day, about twenty hours after the supper, fifty-two people who had eaten the lunch were reported sick. Later several more reported, making the whole number about sixty. All who had eaten the chicken were sick, but those who ate cake and coffee and did not eat chicken were not affected. All these patients suffered practically the same symptoms, differing only in degree. They were taken with severe cramps in the bowels, followed by diarrhea and vomiting. Rise of temperature was present in every case that I examined, varying from 101 to 103½. Some were taken sick seven hours after eating the chicken; others were taken sick as late as twenty-four hours after. One man told me that he had taken two big drinks of whisky after the lunch and thought he had escaped any bad effects, but on placing a thermometer under his tongue I found his temperature to be 100.

None of the chicken could be obtained for bacteriologic examination but it is evident that bacterial infection, probably proteus or paratyphoid, was the cause of the poisoning in this case. Proteus as a rule, however, causes little or no fever but does cause severe gastrointestinal symptoms. Clinically this outbreak resembled infection with the *Bacillus enteritidis* of Gartner. Bollinger states that four-fifths of meat-poisonings are caused by this bacillus but in this case the chickens were stated to have been in good health before being killed. Most cases of poisoning from the Gartner bacillus come from "emergency slaughtering," or where the animal has been killed because of disease.

Professor Dieudonné in his book on food-poisoning states: "Meat poisoning may be occasionally produced by the hay bacillus (*Bacillus subtilis*). An instance of this is reported by Lubenau, who observed an outbreak among the inmates of the Beelitz sanatorium, in 1906. About three-fourths of the 400 inmates and a large part of the help were affected shortly after eating meat croquettes. They had been served at the noon meal; at about 11 in the evening a large number of persons were seized with a profuse diarrhea, persistent vomiting, severe headache and great prostration. In two or three individuals fever was also present. Bacteriologic examination revealed the presence of a bacillus belonging to the hay bacillus group."

I believe it of considerable importance that these cases be reported and that bacteriologic examination be made in every case possible.

GOUTY AFFECTIONS OF THE NERVOUS SYSTEM

REPORT OF AN INTERESTING CASE

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Formerly the term lithemia was used to cover up our ignorance in regard to a number of affections of uncertain origin. We now know that there is no such disease, but we recognize some of the terms formerly included, of one of which I will report an interesting case.

History.—The patient was a white man, aged 32, married; occupation, telegraph operator. His father and mother were living and well; no history of rheumatism or gout. The patient had had the usual diseases of childhood and typhoid fever ten years before coming under observation. He has had periodic attacks of arthritis of the left knee for the past three years, accompanied by some swelling and tenderness; facial neuralgia for past three years, only slight.

Present Illness.—This began one year before the present attack, with slight headache, constipation, scanty urine and great nervousness. The patient suddenly awoke one night with agonizing pain in the lower right quadrant of the abdomen, nausea and vomiting. The next morning he walked to a physician's office, where two surgeons pronounced his case as one of appendicitis and advised immediate operation. This he refused. He stated that he had no fever, slow pulse, slight ten-

derness, no rigidity. Recovery was slow. A few months after this he had a second attack similar in every way to the first except that the pain was at the margin of ribs in mid-axillary line. The physicians called pronounced this hepatic abscess. The patient again refused operation and recovery ensued.

Examination.—On June 5, 1909, I found the patient suffering from agonizing pain, confined to the right nephritic region, headache, nausea, vomiting and great nervousness. There was some slight discoloration of the conjunctivæ; pulse was 68; temperature, 98.3; some slight tenderness over point of pain but no radiation. There was no rigidity. The kidney was not palpable; the liver was normal in size. Hot applications failed to relieve pain, and morphin was given. Urine was scanty, highly colored, depositing a heavy sediment on standing; sp. gr. 1028, acid, no albumin or sugar. Microscope gave quantities of mixed urates and uric acid crystals; no pus or blood cells. Blood count was normal. The Garrod string test was not applied.

Treatment.—This consisted in relieving the constipation by means of alkaline diuretics, careful dieting and copious draughts of water. Recovery was rapid and the patient states that he feels better than for the past year.

It will be noted that in no attack did he have fever, rapid pulse, pronounced tenderness or any rigidity; that headache, nausea, vomiting and extreme nervousness accompanied all and that each attack was preceded by constipation, headache and scanty, highly colored urine.

Such cases are interesting, not from their rarity, but from a diagnostic standpoint. We are too prone to consider every abdominal pain as indicative of appendicitis, cholelithiasis or ureteral calculus.

The periodic attacks of arthritis are entirely relieved by the salicylates, alkaline diuretics and hot applications. These attacks are not necessarily coincident with the other affection, but has given him some trouble during the last attack. The facial neuralgia has given the patient no trouble since the first attack of the present trouble.

TUBERCLE BACILLI IN THE BLOOD

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AND
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Drs. M. P. Ravenel and Karl W. Smith of Madison report[1] eighteen cases of tuberculous patients whose blood they examined by the Rosenberger method; they failed to demonstrate tubercle bacillus in the blood of a single case, and conclude: "This investigation has been confirmed by reports from all over the world, and the only conclusion that can be reached is that the Rosenberger method is of no value."

We wish to report ten such examinations, a number quite too small to warrant us in criticizing such an authoritative and conservative worker as Rosenberger, yet sufficient, we think, to permit us to question the above results and conclusions.

CASE 1.—Clinical diagnosis, pulmonary tuberculosis; bacillary sputum.

Blood examination: Some microscopic fields, no tubercle bacilli; others had various numbers, the highest being nineteen in one field.

CASE 2.—Patient had hip-joint disease three years before coming under observation, abscess formation; operation, recovery with fixation; *x*-ray shows partial destruction of head of femur and acetabulum. Physical examination and clinical symptoms negative.

Blood examination: Tubercle bacilli as high as nine in field.

CASE 3.—Clinical and physical signs of pulmonary tuberculosis; sputum non-bacillary.

Blood examination: As many as 6 bacilli in one field.

CASE 4.—A child with hip trouble; *x*-ray negative for osseous destruction. Physical examination negative.

Blood examination: Tubercle bacilli in blood.

CASE 5.—A young man, now apparently healthy, although two years before coming under observation he was very much "run down." Afternoon and evening temperature as high as 101 F.; cough and loss of weight. Physical examination at that time and present, negative. Dozens of sputum examinations, also examinations of urine and feces, negative for tubercle bacilli.

Blood examination: As high as 10 tubercle bacilli in a field.

CASE 6.—A patient with axillary adenitis. Pathologic report on removed glands, sarcoma.

Blood examination: Negative for tubercle bacilli.

CASES 7 and 8.—Positive findings. A diagnosis of typhoid fever has been made since. One of these cases at least is clinically typhoid. In each of these cases several hours' search revealed only a few bacilli.

CASE 9.—This case had a provisional diagnosis of tabes dorsalis with an unexplainable temperature.

Blood examination: Positive for tubercle bacilli.

CASE 10.—Pulmonary tuberculosis; bacillary sputum.

Blood examination: Positive.

Our technic is Rosenberger's improvement on what he originally used. The venous blood is smeared rather thickly on cleaned slides, dried, laked in distilled water, fixed, then stained with gently heated carbol fuchsin for five minutes, washed with water, decolorized with 25 per cent. nitric or sulphuric acid, then stained with methylene blue, or with Gabbet's solution used immediately after the carbol fuchsin. There is no doubt but that morphologically and tinctorially these were tubercle bacilli. If this technic does not demonstrate that these were not tubercle bacilli, then one cannot make a positive diagnosis of bacillary sputum without inoculation tests.

We do not wish to go on record as to the practical value of the Rosenberger method, but report our findings to encourage others to continue their labors, for the subject certainly can not be considered a closed one.

1. Proceedings of the State Medical Society of Wisconsin, reported in THE JOURNAL A. M. A., Aug. 21, 1909, liii, 649.

New and Nonofficial Remedies

SINCE THE PUBLICATION OF THE BOOK "NEW AND NONOFFICIAL REMEDIES, 1909," THE FOLLOWING ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK ARE ASKED FOR.

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT SO FAR AS KNOWN IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

TRANSFER OF AGENCY

Triferrin and Triferrol (see New and Nonofficial Remedies, 1909, p. 134 and 135), formerly sold by C. Bischoff & Co., New York, are now sold by Knoll & Co., New York.

MASSOLIN—Cultura Bacilli Bulgarici-Lederle.—Massolin is a pure culture of the *Bacillus bulgaricus* of Massol, grown on one of the following media: Calcium carbonate lactose broth, calcium carbonate dextrose broth, calcium carbonate Cohendy broth, or Cohendy broth.

The material for one of the above broths is sterilized for thirty minutes on three successive days and then placed in the incubator for at least forty-eight hours to determine its sterility before using. The material is then put into large flasks, inoculated from test tube cultures of the bacillus and incubated at 37 C. (98.5 F.) for from twenty-four to ninety-six hours. It is then tested to see that it is free from contaminating organisms.

The preparation is of an amber color and has the odor and taste of the particular medium employed as its base.

The material should be inoculated into milk and into the above media in test tubes and smeared on Cohendy agar. The cultures should be examined microscopically for the detection of contaminating organisms.

Actions and Uses.—The culture tends to prevent the growth of putrefactive and pathogenic organisms. It is said to be useful in the treatment of suppurative conditions and is said to have been found especially beneficial in atrophic rhinitis, chronic nasal catarrh, inflammations of the frontal sinus, antrum, ethmoidal cells, middle ear, etc.

Dosage.—The culture should be liberally applied directly to the diseased area and in ordinary nose and throat affections the contents of one bottle 7.5 Gm. (¼ ounce) may be employed at each treatment.

Manufactured by Lederle Antitoxin Laboratories, New York (Schieffelin & Co., New York).

No patent or trademark. U. S. Government License No. 17.

CALCIUM LACTATE—Calcii Lactas.—Calcium lactate, $Ca(C_3H_5O_3)_2.5H_2O$, is the calcium salt of lactic acid.

It is prepared in the manufacture of lactic acid by the lactic acid fermentation of sugar or by the neutralization of lactic acid by calcium carbonate.

It occurs in white crystalline masses or powder, odorless and tasteless. It is soluble in 9.5 parts of water, easily soluble in hot water. At 100 C. (212 F.) it loses water of crystallization.

If calcium lactate is heated gently with a mixture of sulphuric acid and potassium permanganate the odor of aldehyde will be given off. An aqueous solution of calcium lactate will throw down a white precipitate, insoluble in water and acetic acid, on the addition of a solution of ammonium oxalate.

Actions and Uses.—Calcium lactate has the pharmacologic action of other calcium salts. Being less irritating than the chloride, it may be given subcutaneously. It is used to increase the coagulability of the blood.

Dosage.—0.5 to 4 Gm. (7 to 60 grains).

TANNISMUTH—Bismuthi Bitannas.—Bitannate of Bismuth. Tannismuth is the bismuth salt of tannic acid in which approximately one atom of bismuth is combined with two molecules of tannic acid having approximately the formula $Bi(OH)(C_{14}H_9O_9)_2$ and containing between 17 and 21 per cent. bismuth.

It is a light yellow powder with slightly astringent taste, insoluble in water, soluble in cold caustic alkalies, and in diluted hydrochloric acid.

Actions and Uses.—It is claimed that one molecule of the tannic acid becomes operative immediately after ingestion, while the other is slowly separated and prolongs the astringent action throughout the entire length of the alimentary canal.

It is said to be useful in chronic intestinal catarrh, involving different portions of the intestinal tract.

Dosage.—0.3 to 0.6 Gm. (5 to 10 grains) three to five times daily.

Manufactured by Chemische Fabrik von Heyden, Radebeul near Dresden, Germany (The Heyden Chemical Works, New York). German patent No. 172,933. U. S. trademark No. 36,916.

PEROXIDE ZINC SOAP—Sapo cum zinci peroxido.—Peroxide Zinc Soap is a soap containing 10 per cent. zinc peroxide, which see.

Actions and Uses.—It is said to be useful as a vehicle for employing zinc peroxide in the treatment of skin diseases.

Prepared by J. Eavenson & Sons, Camden, N. J., for the Roessler & Hasslacher Chemical Co., New York. U. S. patent No. 787,776. No trademark.

HOMATROPINE HYDROCHLORIDE—Homatropinæ Hydrochloridum.—Homatropine Hydrochloride, $C_{16}H_{21}NO_3HCl$, is the hydrochloride of the alkaloid homatropine, obtained by the condensation of tropine and mandelic acid.

Homatropine hydrochloride occurs as small white crystals, soluble in water and alcohol and melting at 216 to 217 C. (420.8 to 422.6 F.).

If sulphuric acid containing a trace of potassium dichromate be added to a crystal of the salt an evanescent pink color will be produced which rapidly changes to green. If 0.01 Gm. of the salt be added to 5 drops of nitric acid and evaporated to dryness in a porcelain dish the residue should not acquire a violet red color upon the addition of a few drops of alcoholic potassium hydroxide test solution (absence of atropine, hyoscyamine or hyoscine). If 1 c.c. of an aqueous solution of the salt (1 to 100) be made alkaline with ammonia water, shaken out with chloroform and the chloroformic solution evaporated to dryness, the residue should turn yellow and finally brick red when warmed with about 1.5 c.c. of a solution of 1 part mercuric chloride in 30 parts of a mixture of 5 volumes alcohol and 3 of water (absence of most other alkaloids except atropine and hyoscyamine). If to an aqueous solution containing 0.1 gm. of the salt an excess of potassium hydroxide test solution be added, liquid extracted with ether and the latter evaporated spontaneously, the crystals which form should melt at 96 C. (204.8 F.).

Actions and Uses.—Homatropine is less poisonous than atropine, but the same symptoms are produced by it when exhibited in large doses.

The hydrochloride is used as a mydriatic in ophthalmic surgery. The mydriatic effect begins in ¼ to ½ hour and reaches a maximum in one hour and disappears in 36 to 48 hours. Accommodation paresis ceases earlier.

Homatropine hydrochloride is given for the same indications as the hydrobromide, but has no advantage over the latter.

Dosage.—It is applied to the eye in 1 per cent. solution.

THEPHORIN—Theobrominæ Sodio-Formas. — Theobromine Sodium Formate. Thephorin $C_7H_7N_4O_2Na+NaCHO_2,+H_2O$ is a double salt of sodium formate and theobromine sodium.

It is prepared by dissolving 70.1 parts of theobromine sodium in 200 parts of water and adding to it a solution of 23.5 parts of anhydrous sodium formate in 50 parts of water, filtering the mixture, and evaporating to dryness on a steam bath or in vacuo. Thephorin is a white, odorless powder having a saline bitter taste and is readily soluble in water producing an alkaline solution. From its aqueous solution the theobromine is precipitated by acetic acid. In the filtrate formic acid is indicated by the reduction of silver nitrate.

If an aqueous solution of thephorin be faintly acidulated with nitric acid, the filtrate should give no precipitate with barium chloride, nor with silver nitrate, nor with ammonia water and hydrogen sulphide.

Two Gm. thephorin are placed in a porcelain dish and dissolved in 10 c.c. water with the aid of gentle heat. A few drops of phenolphthalein test solution are placed in the solution, neutralized with nitric acid, the faint alkaline reaction is again restored by means of diluted ammonia, the solution is then thoroughly stirred and, with frequent stirring, allowed to stand for three hours at ordinary temperature.

The resulting precipitate collected on a weighed filter of 8 cm. diameter, is dried at a temperature of 100 C.; it is then washed twice with cold water using 10 c.c. each time. The filter is again dried at a temperature of 100 C. and weighed. The weight of the precipitate should amount to 1.2 gm.

Actions and Uses.—Thephorin is said not to irritate the stomach and acts as a powerful diuretic, both on account of the theobromine which it contains and also from the action of sodium formate.

It is said to be useful in cardiac affections, nephritis, dropsy, etc.

Dosage.—0.5 Gm. (7½ grains) two or three times a day in the form of powder or as tablets.

Manufactured by F. Hoffmann-LaRoche & Co., Basel, Switzerland (The Hoffmann-LaRoche Chemical Works, New York). U. S. patent No. 172,932. U. S. trademark No. 59,581.

Thephorin Tablets, 7 1/2 grains: Each tablet contains thephorin 0.5 gm. (7½ grains).

BENZOSALIN—Methylis Benzoyl-Salicylas. — Benzoyl-Salicylic-Acid-Methylester—Methyl Benzoyl-Salicylate. Benzosalin, $C_6H_4.O(CH_3).COO(C_6H_5CO)$, $1:2=C_{15}H_{12}O_4$ is the methylester of benzoyl salicylic acid.

Benzosalin is prepared by a reaction between the methylester of salicylic acid and benzoyl chloride in the presence of sodium hydroxide. The resulting product is washed with water and after drying is crystallized out from alcohol.

Benzosalin consists of fine, white crystals with a very faint aromatic odor. It melts at about 85 C. (185 F.). It burns leaving no residue. It dissolves readily in chloroform, benzene and in 35 parts of 90 per cent. cold alcohol, also in pure concentrated sulphuric acid.

Actions and Uses.—Benzosalin is said to pass the stomach unchanged and to be decomposed into its constituents, benzoic and salicylic acid in the intestines. It is said to be free from the undesirable by-effects of salicylic acid. It is claimed that benzosalin is an intestinal antiseptic.

Benzosalin is said to be useful in rheumatic affections, such as arthritis, neuralgia, sciatica and migraine, and in arthritis deformans.

Dosage.—0.5 to 1 Gm. (7½ to 15 grains). Daily dose 3 to 4 Gm. (45 to 60 grains) in powder or tablets.

Manufactured by F. Hoffmann-La Roche & Co., Basel, Switzerland (The Hoffmann-La Roche Chemical Works, New York.) U. S. patent No. 799,706. U. S. trademark No. 58,757.

Benzosalin Tablets, 5 grains: Each tablet contains benzosalin 0.3 Gm. (5 grains).

FERROUS LACTATE—Ferri Lactas.—Iron Lactate—Ferrum Lacticum. (U. S. P., 1890; Pharm. Germ., edit. 4; Pharm. Helvetica, edit. 4; Pharm. Belgica, edit. 3; Pharm. Francaise, 1908); Ferrous lactate, $Fe(C_3H_5O_3)_2+3H_2O$ is the ferrous salt of lactic acid.

Ferrous lactate occurs in pale greenish-white crusts, consisting of small, needle-shaped crystals, or transparent green scales, having a slight, peculiar odor and a sweetish, ferruginous taste. It is slowly soluble in about 40 parts of cold, and in 12 parts of boiling water; almost insoluble in alcohol; freely soluble in a solution of an alkali citrate yielding a green solution.

When strongly heated, the salt froths, gives out dense, white, acid fumes, chars and finally leaves a brownish red residue.

The aqueous solution of the salt has a greenish-yellow color, a slightly acid reaction, and gives a deep blue precipitate with potassium ferricyanide, and a light blue one with potassium ferrocyanide.

A 2 per cent. aqueous solution of the salt should not yield more than a faint opalescence with a solution of lead acetate (limit or absence of sulphate, chloride, citrate, tartrate and malate). The aqueous solution after acidulation with hydrochloric acid should not yield any precipitate or coloration when treated with hydrogen sulphide (absence of foreign metals).

The aqueous solution, acidulated with nitric acid, should not afford more than a slight opalescence with barium chloride solution or with silver nitrate solution (limit of sulphate or chloride). If 25 c.c. of a 2 per cent. aqueous solution of the salt be mixed with 5 c.c. of diluted sulphuric acid, the mixture boiled for a few minutes, an excess of sodium hydroxide added and the mixture filtered, the filtrate when mixed with a few drops of alkaline cupric tartrate solution and boiled, should not yield a red precipitate (absence of sugar).

If a portion of the salt be triturated with strong sulphuric acid, no offensive odor should be developed (absence of butyric acid), nor should any gas be evolved (absence of carbonate), and the mixture after standing for some time should not assume a brown color (absence of sugar, gum, or other readily carbonizable impurities).

If 1 gm. of the salt, contained in a porcelain crucible, be moistened with nitric acid and carefully ignited, it should leave a residue of ferric oxide weighing not less than 0.270 nor more than 0.278 Gm. This residue should not have an alkaline reaction on litmus paper, nor yield anything soluble to water (absence of foreign salts).

Actions and Uses.—Ferrous lactate is a mild chalybeate which because of its feeble taste may be taken without difficulty.

Dosage.—0.08 to 1.3 Gm. (1 to 20 grains). Owing to its liability to oxidation, it is best prescribed in solutions containing much sugar. Syrup dissolves 1 Gm. in 120 Gm. (4 grains to the fluidounce).

DIGALEN—Liquor Digitoxini Solubilis.—Digalen is a mixture said to contain 1 part of Digitoxinum Solubile Cloetta,[1] in 1,000 parts of glycerin and 1,600 parts of distilled water with 7.5 per cent. of alcohol. 1 Cc. is said to contain 0.0003 Gm. of Digitoxinum Solubile Cloetta.

Digitoxinum solubile Cloetta is manufactured as follows:

The dried and finely powdered leaves of digitalis are extracted with dilute alcohol: then the extract is mixed with lead acetate solution in order to remove chlorophyll and resins and filtered. From this filtrate the excess of lead is precipitated with sodium sulphate and the alcohol distilled off in vacuo. From the remaining aqueous solution the substance is extracted by ethereal solvents and precipitated afterwards in an amorphous and pure condition according to a special secret method.

Digalen is a colorless or slightly yellowish fluid of an agreeable aromatic smell and a sweet taste which turns bitter afterwards.

Digitoxinum Solubile Cloetta is described as an amorphous, white or slightly yellow powder. Its solubility is said to be about five times as great as that of crystallized digitoxin. It dissolves very readily in alcohol and choloform and a little less readily in ether. It has an intensely bitter taste and causes violent sneezing. It is claimed to be the form in which digitoxin exists in the digitalis leaf before it is deposited in a crystalline and insoluble form.

In order to test for the active principle in digalen a few drops of dilute acetic acid are added to 2 c.c. of digalen solution and then the mixture is shaken out with chloroform. This solution is evaporated and the residue dissolved in about 2 c.c. of glacial acetic acid containing traces of iron chloride. If to this solution concentrated sulphuric acid is added cautiously without mixing, so as to form a separate layer at the bottom of the test tube, a small brown ring will form first between the two layers which becomes broader in the course of some hours and expands towards the top of the tube in a blue green to black shade and towards the bottom of it in a reddish brown one, while the acetic acid acquires finally a dark green-blue color.

The amorphous character of the digitoxin contained in digalen is proved by the following tests: Dissolve 4½ mg. digitoxin amorphous (the entire content of digitoxin amorphous of an original vial of digalen) in 0.225 c.c. of 96 per cent. alcohol. Place the same quantity, 4½ mg. of crystallized digitoxin, also in 0.225 c.c. alcohol 98 per cent.

The amorphous digitoxin dissolves readily to form an entirely clear solution. The crystallized digitoxin, however, dissolves slowly and incompletely. This solubility difference is still more marked if diluted alcohol is employed.

A drop of the clear filtered alcoholic solution of amorphous digitoxin leaves no crystallin residue on evaporation, but a solution of crystallin digitoxin shows on evaporation an active separation of minute, sharp and distinctly formed crystals arising especially on the edge of the drop.

1. The Council has not determined whether digalen contains "soluble amorphous digitoxin" or not, but accepts it merely as a standardized soluble and fairly stable digitalis preparation.

Actions and Uses.—The same as Digitoxin.
(See Jour. A. M. A., May 8, 1909, p. 1499.)

Dosage.—Average single dose 1 Cc. (16 min.) Maximum single dose 2 Cc. (32 min.), maximum daily dose 6 Cc. (96 min.) Intravenous injections of 1 Cc. (16 min.) may be repeated at intervals of one-half to one hour as necessary. For protracted dosage from 1 to 2 doses daily of from 7 to 14 drops are given.

Manufactured by F. Hoffmann-LaRoche & Co., Basle, Switzerland. (The Hoffmann-LaRoche Chemical Works, New York.) U. S. trademark No. 43,593.

Therapeutics

CHRONIC NEPHRITIS

Chronic interstitial nephritis, Bright's disease, or better named under the clumsy but more descriptive title of cardiovascular-renal disease, is markedly on the increase in this country; consequently, it is necessary for the medical profession to take means of preventing its occurrence. It is unimportant for the discussion of its prevention which part of the anatomy of the individual patient has farthest advanced in the pathologic process. One patient may have arteriosclerosis greatest in evidence, another cardiac weakening, another renal disturbances, but the disease in any case is the same. Increased blood tension seems to be the premonitory condition and the forerunner of all subsequent disturbances in this cardiovascular-renal disease.

A question that has been considerably discussed is: What is the etiology of this increased blood tension? The condition has been variously attributed to tension caused by increased nervous activity; to hypertrophy of the left ventricle, which, however, is probably generally compensatory to overcome the increased arterial pressure; to the circulation in the blood of toxins absorbed from the intestines, which irritate the vessel walls and the central nervous system; to toxins retained in the blood from insufficient excretion by the kidneys; and to a hypersecretion of the vasoconstrictor element of the suprarenals, or to a relatively increased secretion from these glands, at a period of life (after fifty) when the thyroid furnishes a diminished secretion and therefore less vasodilator stuff. It is probable that all or several of these elements, which cause arterial irritation, are at work at once, and there probably is no one cause for a slowly developing endarteritis, increased blood pressure, and a future arteriosclerosis. The parts that chronic lead poisoning, syphilis and its treatment with mercury, serious acute infections, prolonged serious illness, alcohol and the ever frequent over-use of tobacco have played in causing the signs of beginning sclerosis must all be taken into consideration, when the attempt is made to prevent the development of, or to stay, the pathologic process.

It is manifestly impossible to prevent the serious conditions that have gone before, viz., acute illness, syphilis, mercury and lead. It is possible to prevent the continuation of causes that are continuously acting in the individual patient, such as alcohol, tobacco, over-eating, intestinal indigestion, and the nervous tension caused by an excessive amount of mental labor, or by the strenuous life that the patient may be leading.

In this insidious, creeping and almost sneaking disease it is obviously important to recognize early its premonitory symptoms and signs. Not infrequently it is the oculist who is consulted for disturbances of vision, who first notes arterial changes in the retina. The symptoms which the patient has and which he may

take note of, or, on the other hand, take no notice of, are: a slight tendency, or an increased tendency, to headache; slight headaches on first awakening in the morning; some early muscle debility in the morning, which soon passes away, as does the headache; at times, some pain in the occipital region; occasionally intermittency of the heart, sometimes an increased force of the beat, especially on first lying down; sometimes slight attacks of palpitation and dyspnea after exertion that should not cause cardiac disturbance; at times, on exertion, a peculiar paleness about the month; at other times flushing of the face; slight puffiness of the ankles at night, not real edema; a sensitiveness of the skin to slight irritation, so that rubbing or scratching causes an intense local hyperemia that may persist for some minutes; at times occasional digestive disturbances, nausea and vomiting attacks; frequently a coated tongue and a bad taste in the mouth in the morning; possibly a little diarrhea without adequate food, cold, or inflammatory excuse; days of increased frequency of urination; and the tendency to be awakened once, perhaps twice, at night to urinate. These symptoms may bring the patient to the physician, but often do not. In some instances it is the increased frequency of urination at night, or an irritability of the bladder, or a general weakening of the patient from circulatory debility, or actual cardiac distress with possibly slight anginal attacks, that cause the patient to consult his physician.

Besides the above symptoms, the physician finds either increased pulse tension, or, in many instances, a pulse tension that was increased has become lowered from slight cardiac weakness, before the patient has consulted him. In all cases, the blood pressure should be taken and noted, and circulatory treatment directed according to the reading. The physician will often find an intermittency, sometimes an irregularity, of the heart, often slight enlargement, and at times a soft systolic blow at the apex, showing weakness and a slight dilatation of the left ventricle. If there is a systolic blow at the aorta, there may be a slight roughening of this valve, or the sound may be of hemic origin, even if the patient is not anemic; in other words, either one of these cardiac murmurs, the aortic or the mitral, may disappear under proper treatment.

The physician may note an abnormal tendency of the veins of pendent portions of the body (especially of the hands when hanging down) to become dilated, showing some circulatory insufficiency. This may be due to slight arteriosclerosis, or it may be due to cardiac weakness.

The tongue may show varying signs of digestive disturbances or an irregular, patchy, coated condition which is typical of renal insufficiency.

The urine may be of low specific gravity, may contain a trace of albumin, and may show hyaline and granular casts, but all these important urinary findings may be absent. It is essential to examine several specimens of the twenty-four hours' urine to determine the ability of the kidneys to excrete not only nitrogen, but salts. The results of these examinations will decide the modifications of the diet that are necessary.

The results of the examination of the circulation will determine the amount of rest that is necessary, or the amount of exercise that should be allowed.

Drs. N. E. Ditman and W. H. Welker, New York, in a series of articles in recent numbers of the *New York Medical Journal*, ending June 5, 1909, have scientifically presented the symptoms, etiology and treatment of nephritis. They make the statement that in a large proportion of instances this disease is preventable, and certainly ordinarily in its incipiency it may be stopped or stayed. If the patient comes to the physician when the above symptoms only are present, prophylactic measures to prevent the further development and progress of the disease are presented as follows by Ditman and Welker:

Alcohol.—The pernicious effects of alcohol in causing nephritis is attributed generally to its interference with oxidation, and imperfect oxidation is considered by these experimenters to be a distinct cause of nephritis. Consequently, as has long been theoretically known, patients with early signs of cardiovascular-renal disease must not take alcohol in any form.

Cold.—The climate of the temperate zone is more conducive to the development of nephritis than are zones where it is colder and zones where it is warmer. The rapid variations in temperature experienced in temperate climates cause marked changes in the tone of peripheral vessels. Sudden cold raises the blood pressure, inhibits excretion by the skin, and puts more work on the kidneys. For this reason the patient with a beginning chronic nephritis should live during the colder and variable seasons of the year in a warmer climate, if he has the money ability. If he has not the financial means to change his abode, he should be so clothed as to prevent the surface of his body from becoming chilled. Ditman and Welker believe these sudden changes of temperature from warm to cold interfere with oxidation, and for this reason cause kidney irritation.

Exercise and Baths.—The authors believe that exercise for those who devote most of their time to business and its worries, or household duties and frets, and who eat hurriedly, is essential for proper oxidation and, therefore, should enter into the prophylactic treatment of nephritis. Outdoor exercise, plenty of sunlight and sun baths, especially when applied to the whole body, are of great benefit to the patient who is on the verge of arteriosclerosis, chronic nephritis, and their associated conditions. For some patients frequent warm baths and Turkish baths are indicated. This is especially true for the patient who is over-weight, and for the patient whose skin does not normally perspire and therefore does not normally excrete. If the heart is impaired, Turkish baths should not be taken.

Food.—Over-eating of protein nutriment is certainly a promoter of the causes of arteriosclerosis and chronic nephritis. This is especially true if the intestinal digestion is imperfect. Meat, especially, is the protein that is most likely to produce toxins, if maldigested, and if putrefaction occurs in the intestines. Therefore, a patient, who is on the verge of or has a beginning, chronic nephritis, should eat meat but once a day, and that in not large amount. It may be well to take meat out of the diet for a short period, at least. Raw meats, raw oysters, and especially the proteins that contain large amounts of nuclein, as liver and pancreas, should be eliminated from the diet. Meat broths and meat soups that contain a large amount of extractives should be avoided.

Intestinal Putrefaction.—While it is probably not true that if the colon of the human being after forty could be removed he would live to be a hundred, more or less, it certainly is true that intestinal putrefaction, whether mostly in the colon or more or less in the small intestine, is conducive to the absorption of toxins that are irritant not only to the arterial walls, but specific-

ally to the kidneys, and such irritants have been found to promote albuminuria and chronic interstitial nephritis. Any food, diet, regulation of habits, physical or medicinal treatment that will prevent or inhibit intestinal putrefaction will promote the prophylaxis of chronic nephritis.

The primary treatment of this condition is catharsis, followed by such laxative treatment as will keep the intestinal contents normally moving. Radical changes in diet will change the pabulum which aids the growth of the obnoxious bacteria.

Artificially soured milk seems to be a successful treatment of many cases of intestinal putrefaction. Yeast is another valuable treatment of this condition. The so-called intestinal antiseptics are of some advantage and sometimes are curative.

The prevention of the condition, or the prevention of its recurrence after it has been stopped, should begin with proper filling, or extracting, decayed teeth, and frequent and repeated cleansing of the teeth, mouth and throat with such mildly antiseptic or alkaline gargles as are deemed advisable, and the limitation of the food to such articles as are easily and well digested by the particular patient. Foods that tend to carry bacteria and that promote putrefaction should be prohibited, and Herter especially prohibits cheese and the skins of fruit.

Dilute hydrochloric acid is a valuable treatment, if indicated.

Ditman and Welker believe that quantitative determination of the creatinin eliminated will denote the condition of the digestion and the amount of maldigestion and suboxidation, and therefore the likelihood of the development of nephritis.

TREATMENT OF NEPHRITIS WHEN ACTUALLY PRESENT

The above suggestions for prophylactic measures should all be enforced, and Ditman and Welker emphasize the fact that all the methods of treatment, physical and medicinal, found of advantage in chronic nephritis and uremic conditions, are those that tend to promote oxidation in the body.

They have investigated the indican and creatinin excretion in reference to the presence of such symptoms as high tension, headache, lassitude, nausea and vomiting, edema and dyspnea, and find that the arterial tension seems to be increased when there are large amounts of indican in the urine and when the excretion of creatinin is reduced. Also the greater the amount of indican the more the headache, and the less creatinin excreted the more the lassitude, nausea and vomiting. Dyspnea and edema seem to have no relation to the indican or creatinin.

Patients with chronic interstitial nephritis do not excrete sodium chlorid well, and this retention seems to cause edema; hence if there is edema in chronic nephritis the sodium chlorid intake should be reduced, or it should be entirely withheld for a time. Albuminuria is also decreased, when present, by a saltless diet.

The diet in chronic nephritis should be carefully considered. An absolute milk diet is inadvisable. A large amount of water is inadvisable. The amount of meat allowed depends on the ability of the kidneys to excrete nitrogen. There is no difference in the extractives or in the ability of the kidneys to excrete the extractives of ingested red or white meat. The main object in the diet of the nephritic is that he should have a little of all the elements that are necessary for nutrition, nothing that causes indigestion or serious constipation, nothing that has been found by chemical analysis of the urine to be difficult of excretion by the kidneys, and enough food to keep the weight as near normal as possible. He may therefore have some milk, if it agrees; water sufficient to keep the excretions normal, but not sufficient to cause edema, nor in large amounts, if the arterial tension is high, or if he has arteriosclerosis; meat in small amount once a day; eggs; oatmeal, or other cereal; bread, potatoes and other fresh vegetables (no canned food); non-irritating, preferably cooked, fruits; all depending entirely on his ability to digest properly and to excrete the end-products of each particular food. As uric acid is not ordinarily well excreted by kidneys which are in the condition of interstitial nephritis, the purin bases and all such foods as contain large amounts of nuclein should be prohibited, typically liver. Also, all spices and often tea and coffee should be withheld from the diet.

The care of the skin in the nephritic is of special importance. Proper exercise should be taken to cause normal perspiration; warm baths and massage promote normal excretion by the skin. If the skin is a normally excreting organ in the patient who has chronic nephritis he may do well for years. If the skin is dry, diseased and does not properly excrete, he will soon have uremic symptoms.

No drug of any kind that causes irritation of the kidneys during its excretion should be administered to a patient with chronic nephritis. Such drugs are all of the coal-tar products, some of the vasoconstrictors, the stimulant and irritating diuretics, the aromatic oils, and many of the synthetic compounds.

As most nephritic patients are, or soon become anemic, iron in some simple form should be administered, and there is no better iron for this purpose than the tincture of the chlorid, in from 1 to 5 drop doses, in a little fresh lemonade, administered two or three times a day.

It has been shown that the alkalinity of the blood is diminished in patients who are suffering from chronic nephritis. Consequently, the alkalies seem indicated and have long been found of some advantage to these patients. Alkalies are also promoters of oxidation. It should not be forgotten, however, that if they are long administered they may promote tissue waste and therefore loss of weight. While also they are diuretics, diuretics are not always indicated in nephritis, even when the amount of urine passed is small, as injured kidneys do not need stimulation of any kind, but rather derivation such as would be produced by cathartics and by hot baths. Also, urine that is abnormal in its constituency tends easily to have its normal acidity reduced and become neutral or even alkaline, in which conditions bacteria grow and infectious disturbances start, and slight inflammation from infection can occur in any part of the urinary passages. In this condition alkalies would promote and not diminish the growth of bacteria, hence would be contraindicated.

Colon irrigations, to wash out fecal débris and cleanse the large intestine of bacteria, are especially indicated when there are any symptoms showing that uremia may be imminent. When the symptoms show that the patient is about to have an uremic attack, purgatives, hot baths, colon washings, almost total abstinence from food for twenty-four hours, the administration of water, or a small amount of milk and water only, and absolute rest in bed is the best possible preventive treatment.

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[*For other information see second page following reading matter*]

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INFANT MORTALITY

Probably nothing is more fatal to real progress than a mistaken idea that such progress has already been accomplished. Such assumptions are too common. For instance, there is a very general impression that in the past twenty-five years we have greatly reduced the death rate among infants. Such statistics as are available, however, apparently indicate that whatever advance has been made in lessening infant mortality is due chiefly to the improvement in general living conditions. Dr. Stowell,[1] visiting physician to the New York City Children's Hospital and Schools, in a review of mortality tables for recent years, presents some facts that are rather startling, considering the usual impressions as to our great advance in the prophylaxis of infants' diseases.

The death rate of infants under one year per thousand living, as given by Dr. Stowell, shows very little change in the last thirty years in nearly all the civilized countries. In England, for instance, during the five years from 1876 to 1880, the death rate at this age was 145 per thousand. In the decade from 1893 to 1902 it was 152 per thousand living. In France the figures for the two corresponding periods are 163 and 158; in Prussia, 205 and 199; In Italy, 249 and 173; in Switzerland, 189 and 145, and in the United States, 166 and 165.4. The only country that shows a material reduction in the death rate at this age (and perhaps the last one from which it would be expected) is Italy. There is a good reduction in Switzerland, but that has been made in the last few years, as the death rate under one year in 1895 was higher than that in 1876. In the United States the census figures on this subject are very interesting. The deaths of infants under one year are calculated per thousand deaths in the United States. They run as follows: In 1860, 207; in 1870, 209; in 1880, 231; in 1890, 234; in 1900, 191; in 1906, 202; in 1907, 190. This is, of course, for the registration area, which comprises about one-half of the population of the United States and 90 per cent. of all the population in cities over 8,000.

In spite of all that we have hoped to accomplish by scientific infant-feeding, the mortality records do not support the claim of great advance in the preservation of very young children. From a study of the institutions around New York Dr. Stowell shows that the most important factor in preserving the lives of children is breast-feeding. Children who are fed from the breast have four times the chance of life that orphans or foundlings have.

After this, the most important factor making against infant mortality is the training of mothers in the care for their children and the devotion of the mother to her child. An example of how much this latter factor means for the child is cited from the effect of our Civil War on infant mortality in England. During the war cotton was not shipped from this country to England in the usual quantities. As a result many factories in which mothers worked were closed and the latter had perforce to remain at home and care for their children. This caused a great falling off in infant mortality in the manufacturing cities, in which the death rate of infants is now ordinarily very high.

In France the "consultations des nourrissons," organized in the early nineties, have been found the most effective means of combating infant mortality. Poor mothers bring their babies to the infant consultations each week and are taught how to care for them. Thus the children's illnesses come under observation early. Breast-feeding has increased greatly since the consultations became general, and it has been found cheaper, as well as more effective, to give subsidies for breast-feeding than to furnish pure milk. Over sixty per cent. of the mothers were nursing their children in 1900, but in five years this percentage has increased to more than eighty-one.

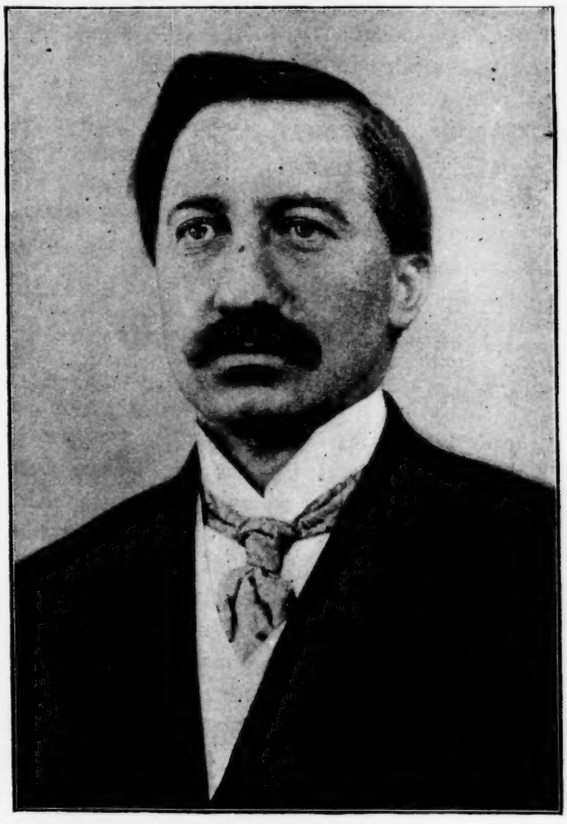
The Huddersfield experiment is another instance of the good results of care of the children and encouragement to the mothers. In 1904 the mayor of Huddersfield, England, offered a prize of one pound for every child born during his mayoralty and produced alive and well at the town hall on the expiration of a year from date of birth. A visitor was sent out to note the condition of the children weekly in the meantime; and the infant mortality of Huddersfield for 1904-1905 was reduced from 134 to 54 in the thousand.

Of course the value of these two factors, mothers' milk and mothers' care, has long been recognized; and, by the way, it is rather interesting to observe that two centuries ago the same causes conspired against the welfare of the hapless children of fashionable mothers as to-day. Dr. Stowell quotes Dr. Harris, a physician to William and Mary in the early part of the eighteenth century, who wrote as follows: "It is grievously to be lamented that so many Mothers not only of the high Rank but even of the common Sort can with so much Inhumanity and mere Brutish cruelty desert their tender Offspring and expose them to so many Dangers of mercenary Nurses who are greedy only of the profuse Rewards bestowed on them at Christening and so being weary of their present Employment perform it negli-

1. Med. Rec., May 22, 1909.

gently while they are looking out for a new Prey. Let us make a Survey of the Advantages that permit Mothers so commonly to sacrifice their beloved Offspring. They are the more free Enjoyment of Diversions, the greater Niceness of adorning their Persons, the opportunity of receiving impertinent visits and returning those insipid Favors, the more frequent Attendance on the Theatre or of spending the greater part of the Night at their beloved Cards." And this two full centuries ago! To-day, unfortunately, the family physician must sometimes share the blame for the fact that the child is early deprived of its best chance of life.

The question of reducing the death rate among infants, then, is much more a matter of hygiene and care for the children and proper instruction for the mothers than of rules and proportions of artificial food ingredients and special mixtures. Surely this lesson deserves to be emphasized; and therefore nothing can be more opportune than Dr. Ostheimer's article[1] in a recent issue of THE JOURNAL, urging that physicians use every effort to help the mother to nurse her child. As Dr. Gengenbach remarked, in discussing this article, "every day, every week, every month, that the child receives breast-milk, increases its resistance in the battle for existence which no other feeding method makes possible." To advise the premature weaning of the child without exhausting every means to improve the hygiene of the mother and the quantity and quality of the breast-milk is to become an accomplice of that "Inhumanity and mere Brutish cruelty" of which our colleague of the eighteenth century so justly complained.



DR. FREDERICK A. COOK

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COOK AND THE NORTH POLE

After centuries of vain striving, in which scores of expeditions have failed and hundreds of lives been lost, it is a remarkable coincidence that within one week the civilized world should have been electrified by news that the north pole had been discovered independently by two explorers, using different routes. The lure of the pole has never been wholly explainable by the hope of the discovery of valuable lands or scientific data of great practical importance, but there are very few persons who fail to appreciate the ambition of explorers. Men love to go where it is thought that human foot has never trod before, and it is human nature to view the inaccessible as a most important goal. As, little by little, most of the globe has been traversed, explored and added to the maps, the icy wastes of the North have called more and more loudly to be conquered. That the news of the discovery of the north pole came first from a physician gives the medical profession particular interest in this subject, which has filled the newspapers for days past.

Dr. Frederick A. Cook of Brooklyn is a native American, born in Sullivan County, New York, June 10, 1865. After attending public schools in Brooklyn and graduating from the University of the City of New York, he took his medical course at the College of Physicians and Surgeons of Columbia University, New York, and practiced in Brooklyn for a brief period. His interest early turned to scientific exploration, and he became surgeon of the Peary expedition in 1891. Subsequently his time has been devoted largely to exploration work. He was surgeon of the Belgian Antarctic Expedition, in which he conducted himself with so much credit that he was honored by medals from the Royal Society of Belgium and the Royal Geographical Society of Belgium and was decorated with the Order of Leopold by the king. Another exploit was the ascent of Mount McKinley in Alaska, in which he was the pioneer, in 1906. His writings have been read with great interest. "Through the First Antarctic Night" described his trip with the Belgian expedition; "To the Top of Mount McKinley" described his thrilling ascent of that mountain.

The present expedition was without the elaborate preparations customary for those who have sought the pole. In the final dash, which, contrary to the usual plan of explorers, was made in the winter, Dr. Cook reduced his equipment to the minimum to facilitate speed, and took with him only two Eskimos. Furthermore, he slipped away from this country without heralding his goal. So, as his return startled the world, he meets a demand for proof of his success, a demand which he, of course, expected and a demand which is

1. Aug. 14, 1909, p. 520.

natural under the circumstances. It does not seem to us to be within our province to decide without reservation that he reached the pole. If a cure for cancer were announced we would feel that the layman who accepted it on newspaper report was a little premature. The examination of Cook's records and data and the placing of the seal of approval on his achievements belong to the scientists who are competent to judge in such matters. We wish Dr. Cook a prompt and enthusiastic acceptance by the authorities whose word has weight.

The medical profession is proud of Dr. Cook, thrilled by his invincible spirit for the conquest of a baffling goal and deeply appreciative of the honor which he has conferred on our calling. This spirit of attacking a difficult problem which has baffled many men is the spirit the medical profession loves to uphold as its ideal. With a far different method but often with the same feeling, the scientist searches for the cause of disease and for its cure. We congratulate Dr. Cook and wish him a speedy return to his native shores and to his wife and children who have so bravely and patiently borne his long absence.

THE LOCALIZATION OF CARCINOMA IN EARLY LIFE

Carcinoma in persons under thirty is uncommon enough to cause comment, and under twenty it is a rare curiosity, but there is no absolute limit below which carcinoma may not appear, as it has been observed even in the first few months of life. There seems to be a striking difference between different tissues in regard to the early appearance of carcinoma, as is brought out by Lindemann[1] in a compilation of the literature on this subject. Carcinoma of the skin seldom occurs in the young, scarcely 1 per cent. of some six hundred cases of cancer of the skin and lip being in individuals under thirty, and but about 2 per cent. of breast cancers under this age. In a large series of cases of carcinoma of the stomach, persons under thirty were the victims in from 2 to 3 per cent., and Riegel has recorded two cases of gastric carcinoma in the new-born, and one in an infant of six weeks. Esophageal cancer seems to be almost unknown before the thirtieth year, and extremely rare before forty; and the generative organs seldom become cancerous in youth, although there are reported cases of a carcinoma of the testicle in a child of one and one-half years, an ovarian carcinoma at nine months, and cancer of the uterus in an eight-year-old child. Three cases of carcinoma of the pancreas between the seventh month and the fourteenth year are also mentioned.

On the other hand certain organs show a relatively large proportion of the cancers which affect them occurring in early life, this being especially true of the kidney and lungs. More than one-third of the cases of renal cancer occur before the tenth year, 5 per cent. each in the second and third decennium, and 10 per cent. between thirty and forty; therefore, over half the cases of cancer of the kidney appear in the years when cancer seldom affects the more common sites of this disease. The lungs, a rare site of primary cancer at any age, show that a strikingly large proportion of such cancers develop in the young; thus of eighty-two cases twenty were in persons between 20 and 30, and in eighteen cases the age was between 30 and 40, so that over a third of these tumors appeared during the period of life when persons are supposed to be immune to carcinoma.

Another unusual site of primary carcinoma is the liver, and here, too, a relatively large proportion of the cases occur in the young, and there is at least one case of carcinoma of the liver in the new-born. Carcinoma of the intestines appears rather frequently in the young, it having been estimated that of all the cases of primary intestinal carcinoma one-sixth manifest themselves before the thirtieth year, and one-seventh between the thirtieth and fortieth years, while no fewer than twenty-three authentic cases before the twentieth year were collected from the literature by Lindemann. No explanation is advanced for this peculiar tendency of tissues which seldom become cancerous at any age, to develop cancers particularly in the young.

1. Ztschr. f. Krebsforsch., 1909, vi, 682.

CULTIVATION OF THE SPIROCHÆTA PALLIDA

Since Schaudinn several years ago discovered the *Spirochæta pallida,* many attempts have been made to grow the organism on artificial media, but only recently has any degree of success been obtained. Schereschewsky[1] observed multiplication of the spirochete in pure horse serum. This medium heated to 58 or 60° C. for an hour or more becomes gelatinous, though it remains perfectly clear. Material obtained from a syphilitic papule or condyloma is immersed in this fluid and placed under strict anaërobic conditions in the incubator. After a number of days the culture is examined and by both the staining method and dark-ground illumination a notable increase in the number of organisms is seen. He recommends the dark-ground illuminator as very satisfactory and easily recognizes the *Spirochæta pallida* by this method. In a more recent paper[2] he gives the results of more extensive studies. In the first culture shortly after inoculation he noted a large number of the refringens type, but in subcultures and in the old original cultures the pallida form prevails.

In Schereschewsky's cultures the syphilitic organisms occurred in mixed culture with other bacteria. Mühlens[3] announces, however, that he has obtained pure cultures of the *Spirochæta pallida* from a syphilitic gland. He used the method employed by him several years ago[4] in obtaining pure cultures of *Spirochæta dentium.* A tube of horse-serum agar (1:3) is inoculated with the syphilitic material and under strict anaërobic conditions after several days very tiny colonies develop on the agar

1. Deutsch. med. Wchnschr., 1909, xxxv, 835.
2. Deutsch. med. Wchnschr., 1909, xxxv, 1260.
3. Deutsch. med. Wchnschr., 1909, xxxv, 1261.
4. Ztschr. f. Hyg., 1906, lv, 81.

which, by breaking the tube, can be isolated and examined. In the fourth generation he obtained pure cultures and morphologically in living and stained specimens they were identical with the original.

Animal experiments using pure cultures are now being carried on by Mühlens, the results of which will soon be reported. Schereschewsky reports negative results thus far on animals. Successful animal inoculations with subsequent recovery of the organism are highly essential and necessary to complete the chain of evidence in establishing the etiologic relation of the spirochete to the disease. Koch's requisites will then be fulfilled as regards syphilis.

Pure cultures of the spirochete will be of great importance in the further study of the disease, opening up new fields especially along the line of immunology and serotherapy. It will place the etiology and pathology on a substantial basis and afford more rational methods for studying and combating the disease.

POSSIBILITIES OF MODERN PREVENTIVE MEDICINE

It has been asserted that if the knowledge of the transmission of disease which we already possess could be fully utilized it would be possible—without the discovery of a single new fact—to increase materially the average span of human life and immeasurably to diminish human distress. Sanitarians have often longed for an opportunity to prove the truth of this in a community where the necessary authority and facilities could be provided and thus to show what modern preventive medicine is capable of accomplishing. It seems that in the Island of Guam many of the conditions of such a medical Utopia can be found.

This island, which is solely a naval station, has a native population of 11,636 and a foreign population of 398, about one-half of which is made up of the naval forces. The government is a sort of beneficent autocracy entirely in the hands of naval officers, and all affairs relating to health and sanitation are administered by naval medical officers. There are no other physicians in the colony, and so these officers are charged with the care of the sick. Hospital accommodations are ample and, by means of dressing stations and clinics, relief is extended in all parts of the island. There is provision in segregated colonies for all cases of leprosy and gangosa and a small separate hospital for other communicable diseases. A medical officer detailed as pathologist of the station is engaged in investigating the nature and causes of the diseases peculiar to Guam. Such a rare centralization of medical research, sanitary administration and the care of all classes of the sick makes conditions almost ideal for a practical demonstration in preventive medicine. The fact that more than three-fourths of the native population of the island is concentrated in a large town where overcrowding is extreme and that Guam is afflicted with the usual endemic diseases and with general worm infection simply makes the results of the experiment of so much more interest and value.

In the July issue of the *U. S. Naval Medical Bulletin* one may read what has been accomplished in the short period of American occupation. The reports of the medical officers for 1907 and 1908 are full of interest and should be read in detail by all those interested in tropical sanitation, but the results of the splendid work which has been done are sufficiently well shown by the death rate of 24.3 per 1,000. Some idea of what such a rate means in the tropics may be gained from comparison with the mortality in tropical cities which have long been under the control of European governments, and from the fact that Guam's death rate is exceeded in not a few cities in the United States. Twenty per cent. of the deaths in Guam are caused by guha, an epidemic respiratory disease peculiar to the Ladrone and Caroline Islands. The death rate from all other causes was 19.9. In many countries in Europe such a rate as this would be considered remarkably low at the present time, and there are many communities in the most favored parts of this country which have not yet been able to attain it. The results achieved in the Canal Zone have set a standard for tropical sanitation, but the presence there of a large temporary population within an age period having normally a very low death rate renders comparison with other tropical communities less significant than in the case of Guam.

In Guam it is planned to replace the water supply by means of wells with one from an uncontaminated source and to extend the sewer system. With such means of controlling infection from intestinal parasites it is likely that the vital statistics of this insignificant Pacific isle will assume an importance little dreamed of by those who undertook its sanitation as part of the day's work.

It is a strange commentary on our progress in matters relating to the public health that we must go to the edges of the civilized world for examples of what can be done in the control of disease, but if the true lesson of the splendid victories which have been won in Guam, the Canal Zone and our other tropical possessions is ever fully grasped by those who make and administer the laws in our own country the end of the present sacrifice of human lives from preventable causes will be in sight.

Medical News

CALIFORNIA

Railway Surgeons Meet.—The seventh annual meeting of the Pacific Association of Railway Surgeons was held in San Francisco August 27 and 28, and the following officers were elected: President, Dr. Carl Kurtz, Los Angeles; vice-presidents, Drs. Oliver D. Hamlin, Oakland, and Thomas B. Reardan, Oroville; secretary, Dr. George R. Carson, San Francisco; treasurer, Dr. Ernest M. Keys, Alameda, and member of executive board, Dr. David Powell, Marysville.

Hospitals and Sanatoria.—The Sanatorium of the White Crusaders, Sacramento, for the treatment of patients in the first stages of tuberculosis, was dedicated at Alta August 16. The institution will accommodate thirty patients, and Dr. John

Howard will be resident physician.——Articles of incorporation have been filed by the San Jose General Hospital with capitalization of $25,000.——The Peninsula Hospital, Palo Alto, has leased from Stanford University, the Guild Hospital building for the temporary care of patients, pending the completion of the new Peninsula Hospital.——The hospital at the Odd Fellows' Home, Thermalito, was formally dedicated August 14. ——The Fowler Memorial Building at the Pasadena Hospital was dedicated August 25.

COLORADO

Fraternal Sanatorium.—The tuberculosis sanatorium of the Modern Woodmen of America has been formally turned over to the trustees. The site consists of a tract of 1943 acres with a central hospital and a number of cottages.

Personal.—Dr. Thomas D. Palmer, Canon City, has been appointed state penitentiary physician, vice Dr. Frank N. Carrier. ——Dr. Charles A. Ellis, Denver, has been appointed official physician to the Trans-Mississippi Congress.——Dr. George H. Stover, Denver, who underwent operation for the removal of thirty cancers on his hand, due it is said, to exposure to the *x*-ray, has recovered and returned to Denver.——Dr. William Booth, Canon City, has been appointed physician of Fremont county.——Dr. Conway B. Ackley was appointed police surgeon of Denver, August 27.

GEORGIA

Fined for Contempt.—In the mayor's court of Athens, August 27, a fine of $100 is said to have been imposed on Dr. W. T. Hamilton for contempt of court, at his failure to appear as a witness after having been summoned.

Osteopathy May Be Legalized.—The House of Representatives, on August 10, passed the Longley Senate Bill, legally recognizing osteopathy in the state, establishing a state board of osteopathic examiners, regulating the practice of osteopathy, and providing that each duly recognized osteopath shall pay a license fee of $10. The bill passed by a vote of 112 to 33. Medical men all over the state have telegraphed and written urging the governor not to approve the bill.

Medical Officers in Camp.—The following medical officers of the Georgia National Guard attended the camp of instruction of medical officers at Antietam, Md.: Major William C. Lyle, Augusta; Major John W. Duncan, Atlanta; Major Clarence H. Willis, Barnesville; Capt. Benjamin E. Pearce, Atlanta; Capt. Martin Cooley, Savannah; Capt. Thomas E. White, Fitzgerald; Capt. Samuel H. Green, Atlanta; Capt. Joseph G. Jarrell, Savannah; Capt. William D. Travis, Covington; First Lieut. Henry P. Adams, Savannah; First Lieut. Henry W. Copeland, Jackson; First Lieut. Robert G. Stephens, and First Lieut. Arnold H. Lindorme, Atlanta.

Free Treatment for Children.—Dr. Stewart R. Roberts, director of medical inspection of the Atlanta public schools, announces that free treatment for diseases of the eye, ear, nose and throat for poor children will be given at Grady Hospital every Friday from two to four by Drs. F. Phinizy Calhoun, Robert B. Ridley, Jr., and Alexander W. Stirling; at the Atlanta College of Physicians and Surgeons on Thursday from 2 to 3:30, by Dr. Abner W. Calhoun, and on Tuesday at 3, by Dr. Dunbar Roy; and at the Atlanta School of Medicine by Dr. J. M. Crawford every Thursday from 1 to 3, and by Dr. Robert B. Ridley, Jr., every Tuesday from 3 to 4.

State Sanatorium Located.—A tract of 257 acres has been purchased for $2,500 near Alto, Habersham county, by the executive committee of the board of trustees for the State Tuberculosis Sanatorium, on which the new sanatorium will be located. The state appropriated $25,000 for the sanatorium, of which $13,000 is available this year. It is proposed to erect an executive building and individual cottages. At the meeting of the trustees in Atlanta August 17, the purchase was confirmed. The members of the executive committee are Capt. W. G. Raoul, Atlanta, T. D. Tinsley, Macon, Dr. Charles H. Richardson, Montezuma, Dr. Marcus F. Carson, Griffin, and Dr. Henry R. Slack, La Grange.

Society Meetings.—The Eighth District Medical Society held its annual meeting in Madison, August 18, and elected the following officers: Dr. Joshua H. Gheesling, Greensboro, president; Dr. Robert W. Trotter, Madison, vice-president; and Dr. Dupree, Athens, secretary-treasurer. The Morgan County Medical Society entertained the society at a barbecue. The next meeting is to be held in Monticello.——At the annual meeting of Troup County Medical Society, held in La Grange, August 26, the following officers were elected: President, Dr. Henry W. Terrell, La Grange; vice-president, Dr. John M. Poer, West Point; secretary-treasurer, Dr. William R. McCall, La Grange; and censors, Drs. Robert H. Jenkins, Hogansville, and Joseph E. Lane

Personal.—Dr. Mark H. Blandford has been elected city physician of Columbus, vice Dr. Charles N. Howard, resigned. ——Dr. S. C. Wilson, Augusta, has been elected secretary of the board of health, vice Dr. Edward C. Goodrich, deceased. ——Dr. Cyrus W. Strickler has resigned from the board of health of Atlanta.——Dr. James B. Wright, for seven years major and surgeon of the Second Georgia Infantry, has resigned.——Dr. Henry F. Harris, Atlanta, secretary of the State Board of Health, and in charge of the state laboratory, who was operated on for mastoiditis in June, is convalescent.

ILLINOIS

Peoria to Have Tent Colony.—It is planned to have a tent colony in operation in old Prospect Park, Peoria, by the first of next month. The institution is expected to be self-sustaining after the first six months.

Personal.—Dr. Louis J. Linder, East St. Louis, sails for Europe September 11.——Dr. William S. Howell, Winnebago, has been appointed local surgeon for the Northwestern system. ——Dr. William C. Day, Whitehall, is reported to be convalescent.——Dr. William G. Caron, Aurora, has been elected supreme treasurer of the Knights of North America.

Hospital Notes.—By the will of the late Judge Solomon H. Bethea, $150,000 is bequeathed to the Dixon Public Hospital, conditionally on the name of the institution being changed to the Katherine Shaw Bethea Hospital.——The new addition to St. Anthony's Hospital, Rockford, was formally dedicated with impressive ceremonies, August 29, by Bishop Muldoon.

Chicago

Personal.—Dr. Frank Billings has returned from Europe. ——Dr. William Rittenhouse, who was injured recently in a street car accident, has recovered and resumed practice.

Tuberculosis Camp Closed.—The school for tuberculous children which has been maintained by the board of education and the Chicago Tuberculosis Institute at Seventy-fifth street and Vincennes road for the last five weeks, closed September 2.

Bacteriologist Dismissed.—The civil service commission on September 3 sustained the charges of Health Commissioner Evans against Dr. Joseph F. Biehn and ordered that he "be removed from his office as superintendent of the laboratory of the department of health and from the service of the City of Chicago."

MARYLAND

Pellagra.—Several cases of pellagra have been reported in Charles county, and the secretary of the State Board of Health has gone to investigate the conditions.

Semi-Annual State Meeting.—The semi-annual meeting of the Medical and Chirurgical Faculty of Maryland will be held at Braddock Heights, September 15-17.

Personal.—Dr. Charles A. Wells, Hyattsville, is reported to be seriously ill with disease of the bladder.——Dr. Clarence Nichols, Hudson, left September 3 for a trip of six weeks through Canada and the Pacific Northwest.

Hospital Needed.—The physicians of Queen Anne county are endeavoring to secure a hospital at Centerville. A board of fifteen directors has been appointed. Dr. Laura Ewing Reading, Hayden, has been designated to devise ways and means of carrying out the project.

Baltimore

Anatomists Resign.—Drs. Robert Retzer and Henry McE. McKnower, associates in anatomy in Johns Hopkins Medical School, have resigned to accept similar appointments at the universities of Minnesota and Toronto, respectively.

Hospitals to Have Fire Alarm Boxes.—The fire board has determined to install fire alarm boxes in all hospitals and similar institutions harboring helpless persons. Considerable delay is occasioned in sending in alarms from these institutions by way of the street fire alarm boxes.

Personal.—Dr. Harvey W. Cushing of Johns Hopkins University, gave the William Banks Memorial Lecture at the University of Liverpool, August 4, on "The Pathology and Surgery of Intracranial Tumor."——Dr. Owen Williams, Liverpool, a member of the staff of the Royal Infirmary, has been sent to study methods in use in Johns Hopkins Hospital.——Dr. A. Duval Atkinson has resigned the clinical professorship of medicine in the University of Maryland.——Dr. Walter Van Swearingen Levy has asked the authorities to be allowed to change his surname to Van Swearingen.

MASSACHUSETTS

Personal.—Dr. John A. Barry, Charlestown, was assaulted and severely beaten August 26.——Dr. W. J. Dodd, Boston, has sailed for Europe.

Lodging House Regulations.—The new rules governing lodging houses of Boston apply to the class of houses where the charge for lodging does not exceed twenty-five cents per night. The new rules provide that records shall be kept, that individual towels shall be furnished, and that no spitting on the floors shall be allowed.

To Reduce Infant Mortality.—The sanitary milk committee of Lawrence is cooperating with the physicians of the city in the endeavor to reduce infant mortality, and has undertaken the modifying of milk under the instructions of the attending physicians. Blank formula cards have been issued, to be filled out by the person ordering the milk.

Hospital News.—The state has taken by right of eminent domain all the land lying between Morton, Canterbury, Walkby and Harvard streets, Dorchester. This is the first step in the erection of a great metropolitan district hospital for the insane.——The Babies' Hospital Corporation, Salem, has purchased the old Ropes' Mansion with about nine acres of land, and will use it for a hospital for children.——The Edward Deery home, Ware, has been purchased by the Boston Nurse and Hospital Association, and will be remodeled at once and opened as a hospital.

Ether Day Exercises.—Invitations have been issued by the trustees of the Massachusetts General Hospital to attend the exercises of the sixty-third anniversary of Ether Day, October 16. In the morning demonstrations will be made and operations performed at the hospital, where luncheon will be served at 1 o'clock. The Ether Day exercises proper will take place at 2:30, when diplomas will be presented and an address will be delivered by Charles W. Eliot, LL.D. (M.D., Hon.), and at 7 o'clock the dinner of the Hospital Alumni Association will occur.

MINNESOTA

Personal.—Dr. Hannibal H. Kimball, Minneapolis, sailed for Europe August 18.——Dr. Thomas N. McLean has been appointed local surgeon of the Northern Pacific Railway at Fergus Falls, vice Dr. William T. Duncan, deceased.——Dr. Albert C. Wedge, Albert Lea, has resigned from the state forestry board.

Hospital Notes.—The Von Hagen mansion, Sleepy Eye, has been rented by Dr. G. Schmidt, who will equip the building as a hospital.——The commissioners of St. Louis county have appropriated $20,000 for the construction and maintenance of a tuberculosis sanatorium for the county. The commission appointed to supervise the erection of the sanatorium consists of Mr. George Gray and Dr. Edward L. Tuohy, Duluth, and Mayor Walter J. Smith, Eveleth.

NEW JERSEY

New Quarantine Boat.—The tug boat *Allen*, which has been used for fifteen years for the State Department of Health at Quarantine, has been superseded by the steamer *James Heyer*, a new and modern vessel, and much better adapted to the purpose required.

August Mortality.—There were reported 3,255 deaths in the state, or 46 more than for the corresponding month of 1908. Among the principal causes of death were infantile diarrhea, 656, or 242 more than for the average for the previous twelve months; diseases of the nervous system, 355; tuberculosis, 325; diseases of the circulatory system, 271; diseases of the digestive system, 248; nephritis, 179; cancer, 164; pneumonia, 114; whooping cough, 31; typhoid fever, 29; scarlet fever, 25; diphtheria, 21; and measles, 11.

Destruction of Mosquitoes.—Prof. John B. Smith, head of the New Jersey Entomological Experiment Station, has recently completed a tour of inspection of five counties in the state where the lowlands, soft marshes and meadows have been ditched under his supervision to rid them of the mosquito. Where this work has been done the pest has practically been eliminated. This work was started six years ago in the most populous counties of the state, namely, Essex, Union, Middlesex, Monmouth, and Ocean. Thus far 10,000 acres of meadow and saltwater land have been drained and the cost has been $5 an acre.

Milk Not Cold Enough.—During the first three weeks of August, Charles C. Spear, a milkman of Caldwell, was fined $75 at Montclair, on the charge that the milk he sold was not maintained at the temperature required by the local sanitary code. The defendant intends to appeal the case on the ground that the Montclair Board of Health has no jurisdiction in the matter, as he claims that the milk found to be of a temperature above the 50 degrees required at Montclair, was not for delivery in that place, but in a locality where there is no regulation as to the temperature of the milk to be sold.

Sanatorium Incorporated.—East Lake Sanatorium, Bridgeton, has been incorporated with a capital of $100,000 by Dr. Jacob G. Streets, Joseph Tomlinson and John H. Moore to conduct a hospital and sanitarium.

NEW YORK

Button Day in Albany.—The Woman's Antituberculosis League of Albany attempted on Labor Day to raise money for the cause for which it is working. The city was divided into six districts with twelve substations, and 300 girl button-venders besieged the people of the city to contribute for the cause, and distributed buttons to the donors.

Site for South Shore Hospital.—Property has been purchased near Roosevelt, L. I., for the proposed new hospital of the South Shore Hospital Association, of which Mrs. O. H. P. Belmont is president. Work will be begun as soon as possible and it is hoped that the new hospital will be ready for occupancy by next spring.

New York City

Gives Ambulance.—Former Park Commissioner Elijah Kennedy is so grateful over his recovery from an operation that he is to present to the Long Island College Hospital an ambulance, of which the institution has been in need for a long time.

More Pure Milk Depots.—Two more milk depots, in addition to the seven now in operation, are to be opened. This plan calls for an expenditure of $55,850, part of which sum will be used to carry on an educational campaign among the mothers of the localities in which the milk depots will be established.

Polyclinic Hospital.—The trustees of the New York Polyclinic Hospital have purchased a site for a new hospital between Eighth and Ninth avenues and Fiftieth street. The new hospital will be twelve stories high and will cost about $1,000,000. The old building on Thirty-fourth street will be continued as an east side branch.

Officers of Italian Society.—The officers of the Italian Medical Society, recently organized in New York City, are as follows: President, Dr. Antonio Stella; secretary, Dr. Rocco Bellantoni; treasurer, Dr. Antonio Vernaglia; members of executive committee, Drs. Frank G. Samarelli, Joseph Grana, Louis Criscuoli and Guiseppe Di Santi, and members of the committee on audit, Drs. R. Muoio and Nicola Morano.

School to be Enlarged.—Plans have been filed for enlarging the University Medical School on First avenue, north of Twenty-fifth street. There is to be a six-story building adjoining the Carnegie Laboratory. This building is to be furnished with operating wards, sterilizing and etherizing rooms, and a series of recovery rooms, in addition to general rooms for the university staff and students. The building will cost about $65,000.

Fresh Air and Work at the Otisville Hospital.—The treatment by exposure of the bodies of children to the rays of the sun, so successful in Seysin, Switzerland, particularly in cases of tuberculosis of the muscles, bones and joints, is to be tried at Otisville. Graduated manual labor for adults will also be tried. The sanitarium is now practically managed by the patients, of whom there are about three hundred. They do all the work except the cooking and the nursing.

Engineers of Health and Hygiene.—Columbia University will give four years to the study of this branch of the engineering department. The first year is identical with that of all the courses in the schools of engineering. In the work of the second year courses in quantitative analysis and microscopy will take the place of two civil engineering courses, and in the third and fourth years the work will be taken up in bacteriology, sanitary biology, physical and biologic analysis of water, municipal sanitation, drainage, heating, ventilation and the principles of sanitary science, public health and hygiene.

Buffalo

Personal.—Dr. E. Lowell Marcy has been appointed assistant surgeon on the staff of the Emergency Hospital.——Dr. G. Brinton Hepp and family have removed to Denver, Colo.——Dr. Julius Ullman has returned from a visit to the Saguenay.

Milk Stations Appointed.—The Fresh Air Commission of Buffalo has appointed several milk stations in settlement houses where modified milk and instructions regarding the care of infants can be obtained.

PENNSYLVANIA

New Site for Tuberculosis Camp.—State Health Commissioner Dixon with Robert S. Conklin, commissioner of forestry, and Dr. Wilbur R. Batt, registrar of vital statistics, visited

the state forestry reservation, Huntingdon county, August 11 and 12, to select a new site for the State Tuberculosis Camp. Dr. Dixon states that a camp for incurables will be established and if the site prove suitable, a camp for incipient cases will also be arranged.

Society Meetings.—The fourth annual meeting of the Fifth Councilor District Medical Society was held in Gettysburg, August 10. The following officers were elected: President, Dr. Walter H. O'Neal, Gettysburg; vice-president, Dr. William E. Wolff, Arendtsville; and secretary-treasurer, Dr. George E. Holtzapple, York. Hanover was selected as the next place of meeting.——Dauphin County Medical Society, at Harrisburg, August 17, recommended the expulsion from the society of all physicians doing lodge or contract practice, and of members meeting and consulting with physicians engaged in lodge or contract practice.——At the sixth annual meeting of the Northwestern Medical Society, composed of members of the medical societies of Warren, Erie, Mercer, Crawford, McKeown and Venango counties, held in Cambridge Springs, August 25, vaccine therapy was the principal subject of discussion. The officers of the previous year were re-elected.

Philadelphia

Milk Dealers Must Be Licensed.—Under the rules drafted by Director Neff of the Bureau of Health, and approved by the state and national authorities, and by the milk exchange, all milk dealers will be required to take out a license issued by the Department of Health. Fresh milk must contain 12 per cent. of milk solids, including 3 per cent. of butter fat; cream must contain 15 per cent. of butter fat, and skim milk 8½ per cent. of milk solids, exclusive of butter fat. Except in the case of modified milk, the addition of ice will be classed as adulteration.

Work Against Tuberculosis.—The Metal Polishers and Buffers International Union has decided to tax its members to found a house for members ill with tuberculosis. The average life of metal polishers is thirty-four years, or six years less than that of ordinary individuals.——The Independent Order of the Sons of Jacob has pledged financial support for the maintenance of a dispensary to be called the Jewish Consumptive Institution, and to work in conjunction with the Philadelphia Jewish Consumptive Sanatorium, Eagleville. The dispensary is to care for all cases of tuberculosis which cannot be treated in sanatoria.

Personal.—Dr. John B. Stetson has been provisionally appointed third assistant bacteriologist of the bureau of health, vice Dr. Mortimer Herzberg, resigned.——Dr. Joseph P. Walsh has been appointed consulting physician to the department of tuberculosis in the Philadelphia General Hospital, vice Dr. Lawrence F. Flick, resigned.——Dr. James T. Schell, chief surgeon of the Northwestern General Hospital, had his automobile demolished in a collision with a trolley car, but luckily escaped without injury.——Dr. Allen J. Smith has been appointed dean of the Medical Department of the University of Pennsylvania, vice Dr. Charles H. Frazer, resigned.

VIRGINIA

Physicians Liable to Arrest.—By alleged disregard of the postal regulations prescribing how bacteriologic specimens may be sent through the mails, a number of physicians of the state have been threatened with arrest by the postal authorities.

Building for Physicians.—A building is contemplated in Richmond to be occupied exclusively by physicians and dentists. A lot has been selected in the central part of the city, and the Academy of Medicine has already agreed to rent rooms in the building if erected.

Personal.—Dr. May Farinholt Jones, assistant resident physician at the State Hospital for the Insane, Williamsburg, has resigned.——Dr. Thomas J. Pretlow has been elected health officer of Newport News.——Dr. William D. Tewksbury has been appointed superintendent of the Virginia State Tuberculosis Sanatorium, Katawba.

GENERAL NEWS AND COMMENT

New Hawaiian Hospital.—The Maui, Hawaii, Agricultural Company has erected a hospital at Paia for the accommodation of its employés, at a cost of about $15,000. The hospital is 147x108 feet, two stories in height, and equipped with all modern appliances.

Clinical Research.—A circular letter has been issued signed by Dr. James Krauss, Boston, calling a meeting at John Ware Hall, Boston Medical Library, October 27, at 10 a. m., which has for its objects the establishment of an American Association of Clinical Research; the establishment of clinical research on an incontrovertible scientific basis in hospitals, and the institution of an American Journal of Clinical Research, in which the work of the members of the association and others doing clinical research work in a scientific manner shall be published.

Interstate Club Organized.—The Interstate Medical Club has been organized with a membership composed of physicians living in Breckenridge, Minn., Wahpeton, N. D., and surrounding towns in Minnesota and North Dakota. The following officers have been elected: President, Dr. Timothy O'Brien, Wahpeton, N. D.; vice-president, Dr. Nathan F. Doleman, Tintah, Minn.; secretary, Dr. C. P. Rice, Breckenridge, Minn.; treasurer, Dr. Louis W. Armstrong, Breckenridge, Minn., and censors, Drs. Tobias L. Birberg, Campbell, Minn., A. Victor Young, Hankinson, N. D., and Robert H. Devine, Wahpeton, N. D.

Officers Elected.—At the annual meeting of the Medical Section of the National Fraternal Congress, held in Boston, August 17, the following officers were elected: President, Dr. Wallace K. Harrison, Chicago; vice-presidents, Drs. Isabella M. Holdon, Port Huron, Mich., and Elmore S. Pettyjohn, Topeka, Kan.; secretary, Dr. John G. McConnell, Chicago; and treasurer, Dr. Elizabeth M. Hooper, Port Huron, Mich.——At the International Congress on Psychology, held in Geneva, August 6, the invitation to hold the next congress in Boston in 1913 was accepted. Prof. William James, Cambridge, Mass., was elected honorary president; Prof. James M. Baldwin, Baltimore, president; and Drs. Edward B. Titchener and James McK. Cattell, New York City, vice-presidents.

Congress of Colored Physicians.—At the eleventh annual meeting of the National Medical Association, held in Boston, August 24-26, under the presidency of Dr. Peter A. Johnson, New York City, the oration on medicine was delivered by Dr. Joseph J. France, Portsmouth, Va., on "The Treatment of Lobar Pneumonia." The following officers were elected: President, Dr. Marcus F. Wheatland, Newport, R. I.; vice-president, W. F. Lofton, D.D.S., Washington, D. C.; secretary, Dr. John A. Kenney, Tuskegee, Ala.; treasurer, Dr. A. Wilberforce Williams, Chicago, and executive board, Drs. Nathan F. Mossell, Philadelphia; Robert F. Boyd, Nashville, Tenn.; George C. Hall, Chicago; Albert R. Collins, Washington, D. C.; Mahlon A. Van Horn, Newport, R. I.; Charles H. Shepherd, Durham, N. C.; Amanda V. Gray, Washington, D. C.; G. E. Cannon, Jersey City, N. J., and Willis W. Steers, Decatur, Ala. It was voted to hold the next meeting in Washington, D. C.

Antituberculosis Work Among Negroes.—Surgeon Charles P. Wertenbaker, P. H. and M.-H. Service, has suggested a plan for the organization of an antituberculosis league for negroes. The plan is that the vice-president of each county society call together the leading negro ministers, physicians, teachers, etc., and induce them to start a branch of the league in each negro church in the county. Any colored person may become a member of the branch league by payment of the annual dues, and will receive a certificate of membership and be furnished a button bearing the words, "Colored Antituberculosis League," which surrounds a double red cross. The fund from the annual dues is to be used for the care and treatment of society members of that league as may have tuberculosis, and for dissemination of information by publication and lectures, and the establishment of dispensaries, sanatoria, etc. The state league of Georgia has already completed its organization and a number of branch church leagues have already been formed.

CANADA

Canadian Medical Association.—The forty-second annual meeting of the Canadian Medical Association, held in Winnipeg, Man., August 23 to 25, was in many respects the best meeting in the history of the organization. The attendance was the largest in its history, as 338 registered, and this, in view of the fact that the annual fee had been raised from $2.00 to $5.00, speaks well for the enthusiasm pervading the organization. Perhaps the desire to see established an official medical journal for the association may account for this. The executive council placed this matter in the hands of the finance committee, of which Dr. John T. Fotheringham, Toronto, formerly editor of the *Canada Lancet*, is chairman, with instructions to proceed at once to place the matter before the Canadian medical profession. Dr. William J. Mayo, Rochester, Minn., read a paper on "The Removal of Sigmoid Tumors," and was subsequently made an honorary member of the association. The address in surgery, on "Cancer of the Prostate," was delivered by Dr. James Bell, Montreal; and the address in medicine, on "Certain Aspects of the Typhoid Problem," by Prof. J. George Adami, Montreal. The scientific part of the meeting, which was exceedingly well-arranged, was conducted under five sections: General medicine; surgery; obstetrics and gynecology; pathology; eye, ear, nose and throat. In the

latter section, Dr. Richard A. Reeve, Toronto, delivered an address on "The Present Status of Ophthalmology;" and in the section on obstetrics, Dr. Adam H. Wright, Toronto, delivered the address. There was held a symposium on the diseases of the kidney, introduced by Dr. R. P. Campbell, Montreal, who dwelt largely on the technic of cystoscopy. He was followed by Dr. Walter McKeown, Toronto, who attended to the surgical aspect of kidney diseases, particularly confining his attention to movable kidney. Dr. John T. Fotheringham, Toronto, dealt with the subject of treatment. Dr. Mayo also contributed to the discussion on this symposium. One of the features of the meeting was the discussion on interprovincial registration, introduced by Dr. Robert H. W. Powell, Ottawa, who took charge of a resolution in the absence of Dr. Thomas G. Roddick, Montreal, whose name has long been identified with this subject. Dr. Powell, after reviewing this matter thoroughly, fathered a resolution which called for an amendment to the present Canada Medical Act, to the effect that whenever five or more provinces shall cause to be ratified the Canada Medical Act in their respective legislatures, these provinces may have interprovincial registration. Representatives were present from every province and it transpired that each province was in favor of dominion registration, some favoring reciprocity with Great Britain in order to thus bring about interprovincial registration. The executive council appointed a special committee to carry on the work to a successful completion. The general secretary's annual report gave a concise review of the work done by the association during the past eight years, which showed that during that time the membership of the association had grown from 900 to 1,500, which with the new members elected at Winnipeg will bring the total membership up to about 1,700. During the past year the association had been incorporated by act of Parliament. As this has been largely brought about through the efforts of the committee on medical legislation, of which Dr. Adam T. Shillington, Ottawa, is chairman, it was thought best to appoint Dr. Shillington, chairman of the committee on public health and hygiene, so that the matter of a bureau of health for Canada, for which the association has been working the past eight years, might be taken up with renewed vigor. The milk commission, through its chairman, Dr. Charles J. C. O. Hastings, Toronto, gave an extended report of the work it had performed during the past year. Mr. A. McGill, chief analyst for the Dominion, spoke by invitation on the legislation the government is enacting in this connection. Dr. Rutherford, chief veterinarian for the Dominion, spoke at considerable length on tuberculosis. The commission was directed to continue its work and report again at the next meeting. In the opinion of the commission, all milk not officially "certified" should be officially pasteurized. The visiting profession was most hospitably entertained by the profession in Winnipeg. There was a conversazione on the evening of the first day; a smoking concert on the evening of the second day; a garden party on the afternoon of the second day extended by the lieutenant-governor of Manitoba, Sir Daniel MacMillan; an excursion up the Red River, besides numerous private functions. From the public standpoint there was a new feature at this meeting, namely, a public address. This was the first time in the history of the association that this had been attempted, and its success was most pronounced. This popular lecture was delivered by Dr. Hugh A. MacCallum, London, Ont., on "The Mind and Its Method of Action in Causing and Curing Disease." It was decided to meet next year in Toronto. Dr. Adam H. Wright, Toronto, was elected president, and Dr. Richard A. Reeve, Toronto, chairman of the executive council. Dr. George Elliott, Toronto, was re-elected general secretary, and Dr. Henry B. Small, Ottawa, treasurer.

FOREIGN

Pure Food Congress.—The second International Congress for the Repression of Adulteration and Frauds in Foods and Drugs will be held in Paris, October 17-24, under the auspices of the White Cross Society. The general secretary is M. Ch. Franche, 16 Place Vendome, Paris, France, to whom all communications relating to papers should be addressed. The congress is divided into three sections: (1) alimentary technology, (2) hygiene, (3) crude drugs, essential oils and crude aromatic substances, chemical products and mineral waters. Important questions concerning the adulteration and misbranding of food and drugs will be discussed in the congress and action taken thereon. State dairy and food commissioners, food and drug officials of the various states and municipalities and manufacturers of and dealers in foods and drugs are invited to become members and take an active part in the proceedings of the congress by attendance in person, presentation of papers or otherwise. Dr. H. W. Wiley (Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.) has been designated as representative of the White Cross Society in America and will send a pamphlet giving full details and will forward to Paris the names of subscribers and their fees. All who send fees directly to Paris are requested to send Dr. Wiley their names in order that he may have a complete list.

South African Medical Congress.—The eleventh annual South Africa Medical Congress met in Durban, Natal, August 3 to 7. The opening address was delivered by Sir Henry Bale, Chief Justice of the Supreme Court of Natal and Acting Governor of the colony, in which he advocated the establishment of a department of health for united South Africa. The presidential address was delivered by Dr. Dumat. It was devoted chiefly to hygiene and preventive medicine and emphasized the need for study of tropical diseases by army surgeons. Dr. M. MacVicar of Lovedale, Cape Colony, read a paper on "Tuberculosis Among the Colored Population of South Africa." He stated that there are few white communities in the world where tuberculosis is so uncommon as among the Europeans of South Africa, and that this explains the apathy of the colony regarding the tuberculosis problem. Tuberculosis, he said, is now most common among the natives in the places where civilization has been longest established, and it has apparently followed the main line of traffic; just as in tropical Africa it has followed the trade routes from the coast. There are a few places in South Africa in which the disease has hardly yet penetrated. In the Transvaal and Rhodesia it is rare and in Basutaland it is also uncommon. In the Orange River Colony it is rather common; it is still more prevalent in Natal and the eastern parts of Cape Colony, while the center and western parts of Cape Colony are the most tuberculous regions of South Africa, having a mortality from tuberculosis among the natives at least four times that of England and Wales. Dr. MacVicar urged the establishment of government hospitals, sanitaria and day and night camps for tuberculous natives and the enforcement of sanitary regulations for factories. He also urged that instruction in hygiene be given in the schools, colleges and universities. Dr. Ernest Hill, health officer of the Colony of Natal, read a paper on "Death Rates in the Different Sections of the Community of Natal," in which he discussed chiefly the death rate of Hindoo immigrants, who are generally engaged in agricultural industries, mining, miscellaneous subordinate positions, as servants and general laborers. The higher death rate among these people is ascribed to the inferior housing accommodations, poverty, exposure to weather, insanitary surroundings, etc. Tuberculosis among them is three and one-half times as fatal as among Europeans. They are also more susceptible to malaria, diarrheal diseases, syphilis, intestinal parasites, appendicitis, renal diseases, accidents of parturition, general accidents and suicides. Europeans, on the other hand, Dr. Hill states, suffer more from whooping cough, diphtheria, typhoid, cancer, nervous complaints and diseases of the heart and liver. The next congress will meet at Cape Town.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Aug. 28, 1909.

Increase of Insanity

The sixty-third annual report of the Commissioners in Lunacy, which has just been published, shows a continuation of the increase of insanity which has been chronicled in previous years. On January 1 last there were in England and Wales 128,787 persons certified as insane—an increase of 2,703 compared with the previous year. The average annual increase for the last ten years was 2,370. Heredity is considered responsible for 22.6 per cent. of the cases; mental stress for 21.6 per cent. in private cases and 14.6 in pauper; alcohol for 17.3 per cent. in male private cases and 7.1 per cent. in female, and for 24 per cent. in male pauper cases and 9.1 in female. Influenza was responsible for 2.6 per cent. of the cases.

Nursing in Warfare: Enlarged Scope of the Red Cross Society

An important development of the new territorial army scheme "for the organization of voluntary aid in England and Wales" has been made by the War Office. The scheme for consolidating the medical profession into a homogeneous voluntary corps for service at home in time of war has been previously described in THE JOURNAL. A similar plan has now been promulgated for a nursing service. At present there exist in this country two organizations of which the government has made use. These are the Red Cross Society, which was formed to aid the sick and wounded in warfare, and the

St. John's Ambulance Association, the object of which is to train persons to render "first aid" in the accidents of civilian life. The new organization is modeled on those which exist in foreign countries, notably Japan and Germany. The county system has been adopted because it is on this that the territorial force is organized. Each county association will, through the medium of the local branches of the Red Cross Society, form "voluntary aid detachments" of men and women. The men's detachments will be specially employed in preparing means of transport by road, in converting local buildings into suitable clearing hospitals for the slightly wounded near the area of operations. They must be thoroughly trained as stretcher-bearers, and to a certain extent as male nurses. Some will be trained in sanitary work such as disinfection of buildings. Each detachment should contain some men who are expert carpenters and mechanics. The women's detachments will be employed chiefly in forming railway rest stations for preparing and serving food to the sick and wounded during evacuation by railway and for taking temporary charge in the evacuation stations or temporary hospitals of the severely wounded who are unable to continue the journey. The Red Cross Society is fully competent to work the new scheme. Its services in time of war have been many and great. To go no farther back than the Franco-Prussian war it then provided $1,100,000 for the aid of the sick and wounded.

The Influence of Feeding on the Development of Jewish and Gentile Children

At the health congress at Leeds, Dr. William Hall read a very interesting paper on a subject of which he had made a special study—"The Influence of Feeding on the Development of Aryan and Semitic Children Born and Bred in Leeds." He pointed out that the Jewish woman possesses the instinct of feeding her child which the Gentile woman has lost. Hence the prevalence of rickets among Gentile children. Fifty years ago bow-legs were uncommon; now they were seen everywhere, but not in the Jews. Ninety per cent. of Jewish mothers fed their children from the breast; from 85 to 90 per cent. of Gentile mothers did not. The poor Jewish woman when pregnant was looked on as a sacred object. She was guarded against alcohol, prolonged labor and insufficient food. The Jewish child had therefore two advantages over the Gentile—before birth and in the first twelve months of life. Later they showed a greater power of resisting infectious diseases; 97 per cent. of them were able to attend school continuously for five years. This power could not be due to their surroundings, for their houses were not clean, and often very dirty. But they had clean food and they freely used oil, fish and eggs. This Dr. Hall regarded as the great secret of their health. During the last six years he had adopted the Jewish method of feeding children and had seen bow-legs straighten out under it.

Irish Vital Statistics

The forty-eighth annual report of the Registrar-General for Ireland shows for the first time in more than half a century an increase of population. The increase is small, only 1,853, but its importance is great, as it marks the end of the depletion of the population by emigration. The excess of births over deaths was 25,148, and the loss by emigration 23,295. This is a great decrease on the ordinary emigration figures, which averaged for the decade 1898-1907, 38,036. The most important causes which have led to this decline of emigration are the development of the economic resources of the country, especially agriculture, and the almost complete settlement of the long and bitter agrarian struggle. The marriage rate was 5.2 per 1,000, an increase of 0.1 per cent. compared with the average for the preceding decade.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, Aug. 17, 1909.

Personals

I must again begin with the announcement of the death of one of our most distinguished professors. August 16 von Bollinger, professor of pathologic anatomy at Munich, died of heart disease at the age of 66. He was the rector of the University of Munich this year, so that his loss is mourned in wider circles than the medical. He became privat-docent for comparative pathology at Munich in 1870, the next year he accepted a call to Zurich to the newly-established chair of pathologic anatomy and physiology in the veterinary school. At the same time he was privat-docent at the university and a teacher in the agricultural department in the polytechnic school. In 1874 he became professor of pathology in the veterinary school at Munich and of comparative pathology in the university. In 1880 he was made professor of pathologic anatomy and director of the pathologic institute as successor of his former teacher, Professor v. Buhl. His most notable works are the discovery of the actinomycosis fungus, his investigations on the pathology of anthrax, on tuberculosis from food and on the so-called Munich beer-heart. Professor von Bollinger was greatly interested in all that concerns practicing physicians. He took a great part in the development of the *Münchener medizinische Wochenschrift*, being the business manager in the group of fourteen physicians who publish it, and its success is due to him in no small degree.

The Campaign Against Tuberculosis

A police ordinance of the duchy of Anhalt goes to great lengths in limiting the liberty of consumptives in order to prevent the communication of their disease. The ordinance forbids patients of the sanatoria for pulmonary invalids from remaining in the closed rooms of the hotels and saloons. The proprietors are also forbidden to receive temporarily the patients in the enclosed spaces of their premises. The furnishing of alcoholic drinks to the patients is forbidden. The hotel-keepers are also required carefully to clease in hot 2 per cent. soda solution any eating and drinking utensils which have been used by these patients outside of the closed rooms of their places, immediately after their use, and separately from the dishes which are intended for general use.

Centennial of the Berlin University

The centennial jubilee of the Berlin University will be held next year, and the 10th to 12th of October are appointed for the celebration festivities. Oct. 10, 1810, the installation of the first sixteen Berlin professors occurred in the university building; among these the only medical man was the distinguished Hufeland. For the celebration, in addition to a memorial chapel service and a torchlight procession by the students there will be the special assembly, the *Festakt*, in the university hall, at which the present rector of the university, the renowned literary historian, Prof. Erich Schmidt, will deliver an address. The close of the festivities, as is usual in Germany, will be marked by a *Kommers*. In consideration of the great importance of the Berlin University in the development of science in general, and not least of medicine, there is reason to expect that the festival will be largely attended by the people of our own and of foreign countries.

The Imperial Insurance Bill

The strife against the imperial insurance bill has lessened somewhat. A few days ago a convention of the German local *Krankenkassen* was held at which a very decided position was taken in opposition to the demands of physicians. It is officially announced that the bill has been lately discussed by the federal council (*Bundesrat*) and been accepted in its important provisions. But in its details it has received in part some marked alterations. The new bill as it will be presented to the Reichstag for discussion is awaited with anxiety. It will depend essentially on the delegates to the Reichstag to what extent the law will be adapted to the wishes of the medical profession.

Limitation of the Use of Narcotics by Dentists

The employment of narcotics and analgesics by dentists is forbidden by ministerial decree. In pursuance of this the Berlin chief of police has forbidden pharmacists to furnish materials of this kind to dentists.

The German Medical Association at Lübeck

At the annual meeting of the national medical association, the *Aerzte-Vereinsbund*, 333 affiliated associations, with 222,484 members were represented. This is the highest attendance ever recorded.

The most important question taken up at this annual meeting, the *Aerztetag*, held on June 25 and 26, was the proposed imperial insurance law. And, as was to be expected, the association unanimously expressed the opinion that the provisions of the bill which affect the regulation of the relations between physicians and the Kankenkassen would be unacceptable to the medical profession. The association declares that the bill of the imperial insurance law constitutes an exceptional and antagonistic law against physicians and it notifies the imperial government that if this bill shall become a law, no physician belonging to the national medical association, the *Aerzte-Vereinsbund*, will any longer associate himself with industrial insurance. The medical association declares that it

will not be satisfied with this legal regulation of the relations between physicians and the insured unless the following demands, not separable from one another, are incorporated in the law: Only those physicians are to be permitted to practice for the Krankenkassen who submit themselves to the conditions of a contract agreed on between the representatives of the organized physicians and the Krankenkassen respectively.

Exceptions shall be permissible only on the basis of general agreements between the Krankenkassen and the representatives of physicians. In every insurance district a commission of contracts must be established on an obligatory footing of equality, to which the agreements between the physicians and the Krankenkassen shall be submitted; also an arbitration committee and arbitration court, on a footing of obligatory equality, for appeal. The right of free medical treatment is, in general, to be limited to those possessing not more than a total income of $480 (2,000 marks).

These propositions and the reasons therefor are to be presented in due form to the federal council; the Reichstag, the governments of the separate states, and the imperial department of the interior. I believe that the government will heed this unanimous declaration of German physicians and that at least the most important of the above mentioned demands will be inserted in the bill. It will have to be subjected to a thorough revision for protests against many of its provisions have been raised by various trade circles. Whether the demands of the physicians will secure a majority in the Reichstag is quite uncertain for the struggle of the physicians, which is surely justified as a fight for their own professional interests but is naturally regarded as in its tendency opposed to the general ideals of social legislation, finds little sympathy among those parties which are interested in social legislation in its widest sense.

Among these parties are included not only the social democrats as representatives of the laboring classes (the majority of the insured) but also a large part of the central and the liberal parties. Should the Reichstag find itself not prepared to comply with the demands of the physicians, we may expect without doubt a severe struggle. If the physicians actually carry out the resolution adopted at the *Aerztetag* to refuse their cooperation in carrying out the social legislation, it might very likely happen that the Reichstag would again introduce the law compelling medical service, according to which every physician is bound to render his assistance in urgent cases. This law existed in Germany until 1869 and naturally was the source of numerous intolerable situations for the medical profession. It will be a severe blow to our liberty if the legislature should resort to such a regulation. Let us hope that this danger will be avoided.

Among the other subjects before the association, the only one of interest to your readers is the report of the hospital commission. The relations of the hospital physicians in many places are still quite faulty, not only with reference to fees but also in the arrangement of the service, inasmuch as many hospital physicians do not have the superintendence, but are to a certain extent the subordinates of "mother superiors," etc. Moreover, in relation to notice of dismissal and to right of pension the hospital physicians have not the standing to which they are entitled. The hospital commission makes the following propositions for the improvement of the position of the physicians: Not merely the medical but the entire superintendence of the hospital with complete independence should be demanded for the physician. He should be appointed by a written contract, should be responsible only to the owner and is to be regarded by the outside world as the official representative of the institution conducted by him. In regard to the management of the institution it may be conducted by the directing physician himself with non-professional boards of managers subordinated to him, or there may be an incorporated managing body (*Kuratorium*, city commission, etc.). In the latter case the following requirements should be enforced: The physician should be chairman or at least should have membership and vote in such a corporation. He should independently decide under all circumstances with reference to the reception, distribution and discharge of patients, the nursing service, the medical part of the correspondence, the hygienic, sanitary and other medical measures in the business conduct of the institution, regarding the supply of medicines, instruments and nursing materials inside the institution. He should be the head of the entire force of employés and have the right to a full insight into the business of the management and cooperation in the choice of employés, the giving of references, the planning of buildings, etc. The directing physician has the right to a sufficient auxiliary service, especially sufficient medical assistance. The subordination of the physician to a layman and the immediate interference of layman and lay commissions, directresses, etc., in the management independently of the physician, should not be permitted. The physician should receive a definite salary, to increase with the period of service, with retiring pension. He should be entitled to demand a fee in the case of all paying patients in the hospital (a discontinuation of the present duty of gratuitous treatment of patients with means). These principles should hold especially for such hospital physicians as occupy the position as their chief employment, and they are to be reasonably adapted to other conditions. Existing relations should be altered only at the desire of the present occupant of the place or on the occurrence of a new appointment.

Pharmacology

Solubility

A knowledge of the solubility of substances is of great importance to the physician, so that he may not order more of an article than will dissolve in the solvent used and so that he may avoid incompatibilities. The Pharmacopeia very properly gives exact information of the solubility of the various drugs.

These facts may be of use to the pharmacist and the chemist, but they are seldom presented in a form to be readily appreciated or easily remembered by the practicing physician. M. I. Wilbert (*Am. Drug. and Pharm. Rec.*, July 12, 1909) suggests that definite values be assigned to certain adjectives by which the limitations of solubility could be expressed without exact figures. He proposes the following definitions for the Pharmacopeia:

Very Soluble: Articles that are soluble in less than 1 part of solvent.

Freely Soluble: From 1 to 10 parts of solvent.

Soluble: From 10 to 100 parts of solvent:

Slightly Soluble: From 100 to 1,000 parts of solvent.

Very Slightly Soluble: From 1,000 to 10,000 parts of solvent.

Nearly Insoluble: From 10,000 to 100,000 parts of solvent.

Practically Insoluble: More than (+) 100,000 parts of solvent.

The same definition might be stated in another form, thus: 100 c.c. of solvent will dissolve 100 gm. or more of a "very soluble" substance; 10 to 100 gm. of a "freely soluble" substance; 1 to 10 gm. of a "soluble" substance; 0.1 to 1 gm. of a "slightly soluble" substance; 0.01 to 0.10 gm. of a "very slightly soluble" substance; 0.001 to 0.01 gm. of a "nearly insoluble" substance; less than 0.001 gm. of a "practically insoluble" substance.

Such terms would be easily understood and if need be could be memorized or the principal official articles could be tabulated as to their solubility for ready reference. The exact solubility of a substance is not readily ascertained since many factors influence this property, notably temperature, physical condition of the substance, and the presence of impurities or of other substances in solution. As a consequence Wilbert shows that there is marked discrepancy between the figures given for the same substance by different authorities. Thus the following is the solubility of acetanilid as given in the several authoritative books:

Solubility in	U.S.P.	B.P.C.	Ph.Brit. Ph.Hisp.	Ph.Ned.	Ph.Helv. Codex.	Ph.Germ. Ph.Belg. Ph.Dan. Ph.Svec.	Ph. Austr.
Water	179	190	200	210	220	230	250
Alcohol ...	2.5	4	3.5	3.6	3.5	3.5	3.5

Attention should be called to the frequent confusion between the terms "slightly" and "difficultly" or "slowly" soluble. A substance difficultly soluble may eventually dissolve in considerable quantity while a substance slightly soluble even if made to enter into solution in quantities above the ordinary limit will separate out on cooling or on standing. Statements of solubility should indicate the temperature and for medical purposes should be calculated for a temperature which is approximately that of the ordinary living room, say 20° C. (68 F.).

Correspondence

Unwise Recommendation of Acetanilid in Heart Failure

To the Editor:—After all the painstaking work done of late to enlighten the profession at large on the dangers of acetanilid et al. (THE JOURNAL, July 24, etc.), it is discouraging to me to observe that Dr. A. C. Klebs, in his otherwise valuable work on tuberculosis, just issued, lists acetanilid as a heart-stimulant under the heading, "For Tendency to Heart-Failure," p. 823. While the small dose advised might not prove dangerous, except in advanced cases, it is certainly inconsistent with our knowledge of the physiologic action of acetanilid to recommend it as a remedy to combat heart-failure in a disease in which the heart is most often seriously encumbered.

ERNESTE JOHANSEN, M.D., San Francisco.

The Smith Operation for Cataract

To the Editor:—The paper Dr. Würdemann read at Atlantic City on "Expression of Cataract in Its Capsule" [THE JOURNAL, September 4] is misleading to the casual reader.

He quotes as follows from a paper written by Elschnig in 1908: "The lens is expelled after incision of about one-third of the circumference made with a conjunctival flap and an upward iridectomy, either by means of gentle pressure or with the flat spoon acting purely as a gliding surface." Würdemann states that "the above description of Pagenstecher's operation on cataract in the unopened capsule is as short and accurate as has yet been given. Examine these words closely, the various essays of Pagenstecher, digest them, then follow up by reading the essays of subsequent writers, as Cassiani, Gradenigo, Gayet, Landesberg, and other foreign writers, Roosa, Andrew, Henry Smith, Oxley, Maynard, Herbert, Cheney and Greene, then come back to the original of Pagenstecher and give credit for devising the operation in all its details where it belongs, not to later operators, even though of astounding skill, sufficiency and experience."

Again, "But on referring to the original author and in correspondence with German writers, I now fully agree with Elschnig (editor of Czermak's *Augenärztlichen Operationen*) in a letter to me of Feb. 1, 1909, in which he says: 'Pagenstecher's operation is quite the same as Smith's.'"

Dr. Würdemann's paper seems to have been written on the text above quoted from Elschnig's paper of 1908, and all other things made to do service for that quotation. Why does Dr. Würdemann, when enumerating papers by the Pagenstechers, not include any paper written between 1888 and 1908. In 1903 I paid a visit to Pagenstecher and his clinic at Wiesbaden and I have to thank him for his courtesy. He received me in the following terms:

"You are the most interesting man in the world to me. I have advocated extraction in the capsule for the past thirty years, but I have given it up on account of the amount of escape of vitreous. Your operation is quite different. I shall be so much obliged if you will show me how to do it." I then showed him how to do it. Again, "I should be so much obliged if you would preside over me doing it." I did so. He then said: "The best operation in the world, I will now do nothing else."

This explains the hiatus between 1888 and 1908 above noted, and explains why Pagenstecher's operation to-day is the same as Smith's. See the Pagenstecher spoon of the olden days (accompanying illustration). How could this instrument be used as an "inclined plane?" Such is impossible. It was devised to turn concave surface downward after the incision to press on the zonula at the incision and thus dislocate the lens there at least and then to turn concave surface upward to be slipped in through the opening made by thus detaching the zonula, behind the lens and to lift out the lens on it through a "third circumference incision," which means that the capsule would rupture in almost every case. This incision is not big enough, half the circumference would be barely big enough as it has to let out both the spoon and the cataract. Even when no spoon is inserted, the man with considerable experience of the present day operation would be well advised to make his incision half or very nearly half the circumference of the sclero-cornea, if he wishes to avoid mishaps. An incision one-third of the circumference in size, as attributed to Pagenstecher is courting difficulties amounting almost to impossibilities at every step and is courting "slow healing" among other things owing to the excessive manipulation required.

HENRY SMITH, M.D.

Major Indian Medical Service, Jullendur, India.

The Public Service

Medical Department of the Army

Changes for the week ended Sept. 4, 1909:

Porter, E. H., M. R. C., granted leave of absence for 1 month.

Porter, E. H., M. R. C., relieved from duty at Fort Worden, Wash., to take effect on expiration of leave of absence, and will proceed to his home when he will stand relieved from active duty in the M. R. C.

Hughes, L. S., M. R. C., relieved from duty at Ft. Lawton, Wash., and ordered to Fort Worden, Wash., for duty.

Ford, C. S., major, ordered, on the expiration of his present leave of absence, to proceed to Fort Logan, Colo., for duty.

Coffin, H. L., M. R. C., leave further extended two months.

Le Wald, L. T., capt., leave of absence extended 6 days.

Edger, B. J., Jr., major, granted 2 months' leave of absence, with permission to go beyond the sea, to take effect when discharged from treatment at the Army General Hospital, Presidio of San Francisco.

Wooley, H. C., M. R. C., granted leave of absence for one month, with permission to apply for an extension of one month. So much of par. 18, S. O. 174, July 29, 1909, W. D., as relieves Lt. Wooley from active duty in the M. R. C. is so amended as to take effect on the expiration of his leave of absence.

Kendall, W. P., major, granted leave of absence for one month, to take effect about Sept. 10, 1909.

Hull, A. R., M. R. C., granted thirty days' leave of absence when his services can be spared.

Norman, Seaton, M. R. C., ordered to active duty and assigned to Ft. Leavenworth, Kan.

Philips, H. F., M. R. C., ordered to active duty, and assigned to Ft. Sam Houston, Tex.

McCaw, W. D., Kean, J. R., Lt.-cols., and Ireland, M. W., major, detailed as delegates to represent the medical department of the Army at the meeting of the Association of Military Surgeons of the United States, to be held in Washington, D. C., Oct. 5 to 8, 1909.

Wheate, J. M., M. R. C., ordered from Ft. Lincoln, N. D., to Ft. Snelling, Minn., for temporary duty.

Ware, W. H., dent. surg., ordered to proceed to San Francisco, and on arrival, report by telegraph to the Surgeon General of the Army, for annulment of contract.

Cook, G. W., Jones, E. C., Knox, H. A., Mount, J. R., M. R. C., relieved from duty at their present stations and ordered to report on Oct. 1, 1909, to Col. Valery Havard, M. C., president, Army Medical School, at Washington, D. C., for a course of instruction in that school.

Medical Corps of the Navy

Changes for the week ending Sept. 4, 1909.

Wilson, H. D., surgeon, detached from the *Indiana* and granted leave for two months.

Public Health and Marine-Hospital Service

List of changes for the seven days ended Sept. 1, 1909:

Cofer, L. E., assistant surgeon-general, directed to proceed to Cape Charles Quarantine Station and Fisherman's Island, Va., on special temporary duty.

Rosenau, M. J., surgeon, granted 4 months' leave of absence from Oct. 1, 1909.

Nydegger, J. A., surgeon, granted 1 month and 7 days' leave of absence from Sept. 10, 1909.

Sprague, E. K., surgeon, granted 1 month's leave of absence from Sept. 8, 1909.

Wickes, H. W., P. A. surgeon, granted 15 days' leave of absence from Sept. 1, 1909.

Cumming, Hugh S., P. A. surgeon, leave granted July 8, 1909, amended to read 1 month from Aug. 9, 1909.

Foster, M. H., P. A. surgeon, relieved from duty at Elis Island, N. Y., and detailed to accompany the Agent of the Immigration Board of the Territory of Hawaii to the Madeira and Azores Islands.

Gwyn, M. K., P. A. surgeon, leave granted Aug. 17, 1909, for 7 days from Aug. 17, 1909, amended to read 5 days.

Wille, C. W., P. A. surgeon, granted 14 days' leave from Sept. 12.

Boggess, J. S., P. A. surgeon, relieved from duty on Revenue Cutter *Tahoma*, and directed to proceed to Chicago, and report to the Medical Officer in Command for duty and assignment.

Stimson, A. M., P. A. surgeon, granted 7 days' leave of absence from Aug. 23, 1909.

Sweet, E. A., P. A. surgeon, relieved from duty at Boston, Mass., and directed to proceed to Ellis Island, N. Y., and report to the Chief Medical Officer for duty.

Wollenberg, R. A. C., asst.-surgeon, directed to proceed to Rotterdam, Holland, on special temporary duty.

Atilles, Pedro del V., acting asst.-surgeon, leave of absence granted Aug. 4, 1909, amended to read 30 days' leave from Aug. 18, 1909, with pay, and 15 days from Sept. 17, 1909, without pay.

Browne, R. W., acting asst.-surgeon, granted 1 day's leave of absence, Aug. 31, 1909.

Cleaves, F. H., acting asst.-surgeon, granted 21 days' leave of absence from Sept. 13, 1909.

Febian, J. J., acting asst.-surgeon, granted 10 days' leave of absence from Aug. 28, 1909.

Horning, H., acting asst.-surgeon, granted 7 days' leave of absence from Aug. 23, 1909, under paragraph 210, Service Regulations.

Jackson, J. M., Jr., acting asst.-surgeon, granted 5 days' leave of absence from Aug. 20, 1909.

McLarty, A. A., acting asst.-surgeon, granted 10 days' leave of absence from Aug. 27, 1909.

Spohn, A. E., acting asst.-surgeon, granted 1 month's leave of absence from Aug. 1, 1909, with pay, and 2 months from Sept. 1, 1909, without pay.

PROMOTION

Assistant Surgeon Francis A. Ashford, commissioned a Passed Assistant Surgeon (recess), to rank as such from Aug. 11, 1909.

BOARD CONVENED

Board of medical officers convened to meet at the Marine Hospital office, Galveston, Tex., Aug. 31, 1909, for the purpose of making a physical examination of an officer of the Revenue Cutter Service. Detail for the board: Passed Assistant Surgeon G. M. Corput, chairman; Acting Assistant Surgeon Wm. H. Gammon, recorder.

Health Reports

The following cases of and deaths from smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended Sept. 3, 1909:

SMALLPOX—UNITED STATES

Illinois: Chicago, Aug. 14-21, 1 case.
Minnesota: Duluth, Aug. 13-20, 1 case.
Montana: General, July1-31, 44 cases.
Ohio: Toledo, July 24-Aug. 7, 2 cases.
Oklahoma: Oklahoma City, Aug. 7-21, 1 case, 1 death.
Tennessee: Knoxville: Aug.14-21, 1 case.
Texas: Houston, March 20-June 19, 20 cases.

SMALLPOX—FOREIGN

Algeria: Algiers, July1-31, 1 death.
Brazil: Bahia, June 25,-July 16, 7 cases, 3 deaths; Pernambuco, May 15-31, 7 deaths.
Chile: Valparaiso, July 3-31, present.
Egypt: Cairo, July 1-8, 1 case, 1 death.
France: Toulon, July 24-31, 1 death.
India: Bombay, July 13-20, 3 deaths; Calcutta, July 3-10, 2 deaths; Rangoon, July 3-17, 4 deaths.
Indo-China: Saigon, July 3-10, 7 cases, 5 deaths.
Italy: General, Aug.1-8, 1 case; Genoa, July 8-15, 2 cases; Naples, Aug. 1-8, 34 cases, 2 deaths.
Portugal: Lisbon, July 31-Aug. 7, 6 cases.
Russia: Odessa, July 24-31, 1 case, 1 death; Riga, July 31-Aug. 7, 4 cases; St. Petersburg, July 17-24, 41 cases, 6 deaths.
Spain: Barcelona, Aug. 3-9, 4 deaths; Madrid, July 1-31, 81 deaths; Valencia, July 24-31, 1 case; Vigo, July 31-Aug. 7, 1 death.
Straits Settlements: Singapore, July 3-10, 1 death.

YELLOW FEVER

Brazil: Bahia, June 25-July 2, 2 cases.
Ecuador: Duran, July 16-31, 3 cases.
Mexico: Colima, July 30-Aug. 26, 8 cases; Merida, Aug. 14, 1 death.

CHOLERA—FOREIGN

China: Amoy, July 17-24, 9 deaths.
India: Bombay, July 13-20, 17 deaths; Calcutta, July 3-10, 28 deaths; Madras, July 10-16, 2 deaths; Rangoon, July 3-17, 9 deaths.
Indo-China: Saigon, June 26-July 3, 3 cases, 3 deaths.
Netherlands: The Rotterdam, Aug. 26, 2 cases.
Russia: St. Petersburg, July 29-Aug. 13, 408 cases, 200 deaths.

PLAGUE

Brazil: Bahia, June 26-July 16, 5 cases, 2 deaths.
China: Amoy, July 17-24, 62 deaths; Canton, June 26-July 17, 45 cases, 34 deaths; Chang-Poo, July 23, epidemic; Kang-be, June 1-30, 61 cases, 59 deaths.
Egypt: General, July 23-29, 7 cases, 2 deaths; Alexandria, July 30-Aug. 2, 3 cases, 2 deaths.
Formosa: General, July 10-17, 3 cases, 3 deaths.
India: General, July 10-17, 800 cases, 613 deaths; Bombay, July 13-20, 25 deaths; Calcutta, July 3-10, 29 deaths; Rangoon, July 3-17, 40 deaths.
Indo-China: Saigon, June 26-July 3, 8 cases, 7 deaths.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TWO MORE CRITICISMS OF THE LANGUAGE OF MEDICAL WRITERS

To the Editor:—I agree with Dr. Keen's contention in THE JOURNAL (August 14, p. 572) that the use of "data is" is a violation of an obvious rule of grammar; yet I doubt very much whether this practice prevails on a larger scale than that of the unwarranted promiscuous use of "ought" and "should," of which Dr. Keen himself is guilty, when in the closing sentence of his second paragraph he says "But it ought never to occur." "Ought" is a defective verb and denotes a moral or a personal obligation; and "should" is the imperfect from of "shall," and may, though it does not always, imply a social obligation. Thus, we ought to obey the laws; but we should not give offense.. We should be good grammarians; but ought to be honest. Besides, the use of the neuter impersonal pronoun "it," in connection with the verb "ought," is an incongruous combination, and the sentence referred to should, therefore, read, "But it should never occur."

THOMAS J. MAYS, Philadelphia.

To the Editor:—Dr. Keen's letter concerning "data is," reminds me of some other errors in language that are widely prevalent in current medical literature. For instance "appendiceal" appears perhaps oftener than "appendical." While "appendiceal" is more euphonious there is no such word in the dictionaries. The word "starvation" is used incorrectly for "fasting;" and in your last index "fasting" does not appear, but "starvation" is used instead. "Starvation" was first used by Dundas in 1775, and comes from the Anglo-Saxon *steorfan*, "to die." Obviously we can not starve a patient unless we kill him. In a recent and perhaps one of the best works on abdominal surgery, "curetage" appears throughout the book. It should be "curettage." "Sequellæ is a less common mistake for "sequelæ." R. M. HARBIN, Rome, Ga.

ANSWER.—Both our correspondents appear somewhat hypercritical, in that each overlooks the fact that both settled usage and derivation are contributory factors in determining the proper use of words.

Dr. Mays, disregarding derivation, insists on a difference in the kind and degree of obligation expressed respectively by the words "ought" and "should," the former, he feels, implying a primary, intrinsic, or moral obligation, and therefore binding *per se*, while to the latter he accords only a secondary, social or extrinsic obligation. But "shall' (A. S., *sceal*) is the first and third persons singular of the A. S. verb *sculan*, to be obliged, to have to do, to owe (cf. the German *sollen*). At least as late as Chaucer's time "shall" was used as the equivalent of "owe:" "By the faithe I schal to God" (Troylus and Cryseyde, 1. 1600). There is, so far as derivation is concerned, no difference between "you should do it" and "you ought to do it." Both mean, "you owe the doing of it to some authority greater than your own mere volition." The distinction suggested by Dr. Mays, therefore, however convenient, is one to be settled merely by good usage; and it would hardly be difficult to show, from the masters of English literature, that such a distinction is not universal or even general. From this it follows, also, that whatever objection can be directed on the ground of "incongruity" against "it ought" must be equally applicable to "it should."

Dr. Harbin, in his criticism of the common use of "starvation" for mere privation from food, appears to err in the opposite direction. It is not practicable to rely solely on derivation to settle the meaning of words. Would Dr. Harbin, for example, restrict "villain" to its original sense of "a villager" or "knave" to that of "boy"? It is true that originally "to starve" meant to perish; it is allied to the German *sterben*. But in modern usage it means to deprive of nutriment or, in a secondary sense, of some other vital essential, to a degree perilous to life. When we wish to say that some one died from lack of food, it is not enough to say "he starved;" we usually say "he starved to death." We are willing to concede, however, that to describe the therapeutic withholding of food, the word "starvation" is hardly apt; for starvation is, properly speaking, always injurious, though not necessarily fatal; while "fasting" means simply the doing without food, and does not imply any injury. We assume, in any case, that the criticism of the title in our index is directed against the author of the paper, for it is obviously impossible, in indexing, to look up each article in the title of which there might be some slight ambiguity, and ascertain just what the author was talking about.

As to "appendiceal" versus "appendical," we note that while the Standard Dictionary gives "appendical," Dorland has "appendiceal." The English language has not been particularly careful, when adopting adjectival suffixes, etc., to restrict their use to their proper limitations. "Appendiceal" was probably formed on the analogy of "laryngeal," "pharyngeal," which in its turn followed "peritoneal;" but the *e* is in the stem in the last-named word, whereas in laryn-, pharyng-, it is not. These words would have been more correctly formed as laryngal, etc. "Appendiceal" is perhaps more euphonious, and will doubtless hold its own with "laryngeal," rather than be replaced by "appendical" on the more correct analogy of "cervical," "vesical," etc.

As to "curettage"—ignoring the derivation from the French *curette*—we may say that when a word ending with a stressed consonantal syllable adds further syllables, the consonant is generally doubled to retain the stress; cf. defer, deferring, remit, remittance. "Sequellæ" is the result of ignorance, pure and simple, and is one of the words that are constantly misspelled because they are constantly mispronounced. It is not "se-quell-æ," but "se-que-læ." This error is parallel to that of "combatting" for "combating," which has arisen from incorrectly laying the stress on the second, instead of on the first, syllable.

BINDING THE JOURNAL IN FOUR BOOKS A YEAR

To the Editor:—I have had my copies of THE JOURNAL bound for the past six years. The volumes are larger each year, which makes them at the present large, cumbersome and unhandy for ready reference. Can we not just as well have four volumes a year instead of two? E. L. DEWEY, Whiting, Ind.

ANSWER.—There is nothing whatever to prevent anyone who wishes from having his copies of THE JOURNAL bound in four parts to a year, that is, a book for each three months. One of the

several sets bound for use in this office is treated in this way. For example, January, February and March of 1909, compose one book labeled "Vol. LII, Part 1," April, May and June are bound in another book labeled "Vol. LII, Part 2." If one wished, one could add the words "With Index" on the back of Part 2, but this is not essential as the user understands that the index is at the end of the second part. As to making four indexes a year, we think that few would prefer this plan. Although it would be an advantage at the immediate time, it would be a disadvantage afterward because it would require twice as much handling to look up an item in back years. A semi-annual index is considered the golden mean. During the issuance of the twenty-six numbers which make up a volume, the majority of readers can find items without much trouble, as they remember the approximate date, and an index is not so necessary. Looking back a year or two years, however, the more indexes there are the more labor there is to find an item, and frequently one wishes that the index were an annual one. Thus the semi-annual index has been evolved as the most desirable arrangement, especially for weekly publications.

One of our readers detaches the pages which are devoted to Current Medical Literature and binds these with the indexes to subjects and to authors. The remainder he binds with the General Index. This plan may commend itself to others.

Association News

NEW MEMBERS

List of new members of the American Medical Association for the month of August, 1909:

ALABAMA

Douglass, A. G., Birmingham.
Heacock, J. D., Birmingham.
McDowell, Wm. P., Eufaula.
Wheeler, W. C., Huntsville.
Williamson, G. W., Montgomery.

CALIFORNIA

Howe, L. P., San Francisco.
Liverman, J. R., San Bernardino.
Taylor, W. S., Livermore.
Taubles, G. H., San Francisco.

COLORADO

Asquith, A. C., Central City.
Burvenich, C. H., Denver.
Fish, J. B., Edgewater.
Ringolsky, Sol, Denver.
Pollock, R. M., Rocky Ford.

CONNECTICUT

Pike, Ernest R., Lakeville.

DISTRICT OF COLUMBIA

Kress, D. H., Takoma Park.
Parker, E. M., Washington.

GEORGIA

Baird, J. B., Jr., Atlanta.
Bradley, Frances, Atlanta.
Redwine, Word, Cassville.
Winchester, W. R., Macon.

ILLINOIS

Gaul, A. C. A., Chicago.
Miller, W. H., Galena.
Morrison, H. T., Jr., Springfield.
Sparling, A. M., Sailor Springs.
Weirick, A. J., Marseilles.

INDIANA

Asbury, W. D., Coalmont.
Hatfield, S. J., Indianapolis.
Randolph, Frank, Elkhart.

IOWA

Bush, F. W., Bagley.
Culverson, F. P., Greenfield.
Distad, O. E., Holmes.
Harper, J. A., Greenfield.
Harris, E. E., Grinnell.
Hearst, G. E., Cedar Falls.
McBurney, G. F., Belmond.
McGregor, J. C., Downey.
Mulhern, T. W., Greenfield.
Mullins, V. S., Atlantic.
Murphy, M. J., Cumberland.
Shelton, C. D., Bloomfield.

KANSAS

Haake, J. A., Peabody.
Yates, Chas. E., Maple Hill.

KENTUCKY

Montfort, Warren, Woodlake.
Perry, J. R., Fords-ferry.
Strother, J. W., Grayson.

LOUISIANA

Breamx, L. J., Scott.

MAINE

McFadyen, James, Hebron.

MARYLAND

Bates, J. H., Forest Park.

MASSACHUSETTS

Gates, R. E., Mansfield.
Hornbrook, F. W., Boston.
Janes, Jr., B. F., Northampton.
Kenealy, J. H., Natick.
Morse, R. S., Worcester.
Murphy, F. P., Lowell.

MICHIGAN

Fuller, R. T., Grand Ledge.
Jones, G. W., Imlay City.
Lee, E. C., Detroit.
Ross, Zimmerman, St. Ignace.

MINNESOTA

Morse, J. H., Minneapolis.
Schroder, C. H., Duluth.
Warham, T. T., Minneapolis.

MISSOURI

Coughlin, W. T., St. Louis.
Dunlop, H. E., Canton.
Parman, D. R., St. Louis.
Reber, R. L., St. Louis.
Toney, G. W., Fulton.

MONTANA

Parsons, H. H., Missoula.

NEBRASKA

Conlin, F. M., Omaha.

NEW JERSEY

Farr, Jr., J. C., Hoboken.
Whitehead, H. Eugenia, Mt. Holly.

NEW YORK

Davis, W. W., Chester.
Frisch, Frederick, Buffalo.
Michaelis, Julius, Brooklyn.
Peebles, Martha J., Brooklyn.
Robinson, J. A., New York City.
Shaw, G. H., Baldwinsville.
Story, C. B., Bayside.
VanBeuren, Jr., F. T., New York City.
Wolf, C. G. Leo, Niagara Falls.

NORTH CAROLINA

Bolles, C. P., Wilmington.
Horton, W. C., Raleigh.
Lee, Richard E., Goldsboro.
Meadows, W. J., Greensboro.
Utley, H. H., Benson.
Whisnant, A. M. Charlotte.

OHIO

Clarke, D. J., Toledo.
Crumrine, H. C., Cleveland.
Cummer, C. L., Cleveland.
Hitchings, F. W., Cleveland.
Prudhomme, A. J., Cleveland.
Storey, A. S., Cleveland.
Wright, Elizabeth W., Cincinnati.

OKLAHOMA

Kelleam, E. A., Grant.

PENNSYLVANIA

Allen, D. E., Altoona.
Bacon, W. D., Philadelphia.
Cohen, A. J., Philadelphia.
Egbert, W. E., Chester.
Greenewalt, J. C., Chambersburg.
Hallett, H. J., McKeesport.
Johnson, E. E., Philadelphia.
Joseph, L. D., Bradford.
Merrill, W. J., Philadelphia.
Munson, H. G., Philadelphia.
Spiess, W. G., Philadelphia.
Wagner, W. E., Philadelphia.
Weiss, Harry, Bradford.

SOUTH CAROLINA

LaBorde, Oscar, Columbia.
Monsen, M. B., Luray.
Parker, Jr., F. L., Charleston.
Wallace, W. A., Spartanburg.

TENNESSEE

Martin, G. P., Cookeville.
Thomison, J. G., Dayton.

TEXAS

Cary, G. F. S., El Paso.
Combe, F. J., Brownsville.
Combe, J. K., Brownsville.
Hunt, Preston, Texarkana.
Ricks, G. N., Pleasanton.
Smith, P. L., Houston.
Stroud, E. F., Houston.
Wier, W. M., Houston.

VIRGINIA

Coffman, W. H., Richmond.
Smith, J. E., Petersburg.
Wilkins, R. L., Alexandria.

WASHINGTON

Gallogher, P. J., Spokane.
MacLafferty, B. N., Aberdeen.
Melde, Olaf T., Spokane.
Sinks, J. R., Spokane.
Smith, R. W., Walla Walla.
Mathieu, A. L., South Bend.
Mills, J. F., Sedro-Woolley.

WEST VIRGINIA

Ridley, F. T., Bluefield.
LeFevre, E. B., Inwood.
Price, R. C., Morgantown.

Marriages

ALMERIN W. BAER, M.D., Chicago, to Miss Rose Berns of Peabody, Kan., August 28.

HORACE POWELL CONLEY, M.D., to Miss Mary Bond Taylor, both of Memphis, Tenn., August 28.

ALBERT ROY HOGG, M.D., Haralson, Ga., to Miss Gertrude Allen of College Park, Ga., August 24.

MYRON E. BENNETT, M.D., Chicago, to MARY M. WHEELER, M.D., of Grant Park, Ill., September 6.

JOHN LANGDON CHASSELL, M.D., Belle Fourche, S. D., to Miss Hines, of Rowan, Iowa, September 1.

JOHN BROOKS KAUFMAN, M.D., U. S. Navy, to Miss Katherine Metcalfe, at San Francisco, July 21.

ERNEST COLLETT MCKIBBEN, M.D., to Miss Mary Rachel Rogers, both of Vashon, Wash., August 25.

RAYMOND E. GASTON, M.D., Cincinnati, to Miss Myrtle McCullough, of Tranquility, Ohio, August 18.

WILLIAM D. DUCY, M.D., Brockton, Mass., to Miss Edna Ramsay of Bath, Maine, at Portland, June 28.

THEODORE ALVIN LITTLE, M.D., Spartansburg, Pa., to Miss Euphemia Blee of Jerseytown, Pa., August 12.

LEANDER F. CAIN, M.D., Checotah, Okla., to Mrs. Nora M. Fuller of Washington, D. C., at Rockville, Md., August 21.

Deaths

Mason F. Williams, M.D. University of Louisville (Ky.), 1876; a member of the Oklahoma State Medical Association and formerly president of the Muskogee County Medical Society; for more than 30 years a practitioner of the Indian Territory; a member of the local board of U. S. pension examining surgeons; physician to the U. S. jail; physician to Henry Kendall College, and secretary of the first U. S. Medical Examining Board for the Western District of Indian Territory; died in the Muskogee Hospital, August 15, a few hours after operation for peritonitis following rupture of the gall bladder, aged 58.

Charles T. Wilbur, M.D. Berkshire Medical College, Pittsfield, Mass., 1860; a member of the Michigan State Medical Society; assistant surgeon and surgeon of the Fifty-ninth and Ninety-fifth Ohio Volunteer Infantry during the Civil War; from 1876 to 1884 superintendent of the Illinois State Institution for the Feeble-Minded, Lincoln; superintendent and proprietor of the Wilbur Home for the Feeble-Minded, Kalamazoo, Mich.; a member of the board of trustees of the State Institution for the Feeble-Minded, Lapeer; died suddenly at his home in Kalamazoo, August 19, from cerebral embolism, aged 74.

Herman Williams Gross, M.D. University of Pennsylvania, Philadelphia, 1895; a member of the American Medical Association; lieutenant and assistant surgeon of the Sixth Massachusetts Infantry, U. S. V., during the Spanish-American War, with service in Porto Rico; in 1906 a member of the Quincy city council; surgeon to the Fore River Shipbuilding Company, Quincy, Mass.; was found dead in his quarters in the accident hospital of the company, August 24, from the effects of a gunshot wound of the head, believed to have been self-inflicted with suicidal intent, aged 37.

James Stafford, M.D. University of Vermont, Burlington, 1885; College of Physicians and Surgeons, New York City, 1886; formerly attending gynecologist to the Northern Dispensary, New York City; assistant attending gynecologist to the out-patient department of Bellevue Hospital; clinical assistant in gynecology in the New York Policlinic; assistant surgeon of the Seventy-first New York Infantry, U. S. V., and of the Fourth U. S. Infantry in Cuba; died at his home in Perth Amboy, N. J., August 3, from septicemia, aged 48.

Edwin J. Dirickson, M.D. Jefferson Medical College, Philadelphia, 1874; of Berlin, Md.; for many years a member of the Medical and Chirurgical Faculty of Maryland; formerly acting assistant surgeon P. H. and M.-H. Service; physical inspector of the U. S. Life-Saving Service for the fifth district of Maryland; health officer of Ocean City, Md.; and a member of the state legislature; died in the Sheppard and Enoch Pratt Hospital, near Towson, Md., August 27, aged 56.

Homer Bushnell, M.D. University of Michigan, Ann Arbor, 1873; of North Adams, Mass.; a member of the Massachusetts Medical Society and Medical Association of Northern Berkshire; a censor of the Berkshire District Medical Society; and for fifteen years associate medical examiner of the North Berkshire District; died at his summer home near Pownal, Vt., August 23, from cerebral hemorrhage, aged 63.

George Colburn Clement, M.D. Harvard Medical School, Boston, 1880; a member of the American Medical Association; from 1886 to 1892 city physician of Haverhill, Mass.; a member of the board of trustees of and surgeon and opthalmologist to Hale Hospital; local surgeon for the Boston and Northern Street Railway Company; died at his home, August 27, from cerebral hemorrhage, aged 54.

Thomas Simon P. Fitch, M.D. Bellevue Hospital Medical College, New York City, 1867; of Orange, N. J.; a member of the Medical Society of New Jersey; attending physician and member of the visiting staff of Orange Memorial Hospital, and consulting physician to the Orthopedic Hospital and the House of the Good Shepherd, Orange, N. J.; died in Portland, Maine, August 24, aged 64.

Samuel Madison Worthington, M.D. Hahnemann Medical College, Chicago, 1883; of Versailles, Ky.; a member of the Kentucky State Medical Association; a member of the board of directors of the Morgan Helm Memorial Library; died in the Woodford Memorial Hospital, Versailles, August 27, from tuberculosis of the larynx, aged 48.

Alexander M. F. McCollough, M.D. Jefferson Medical College, Philadelphia, 1877; of Los Angeles, Cal.; formerly of Wichita, Kan.; for four years president of the Union Savings Bank, Tacoma, Wash.; died in the Pacific Hospital, Los Angeles, August 19, from peritonitis, after an operation for gallstone disease, aged 56.

Edward Conyers Goodrich, M.D. University of Georgia, Augusta, 1873; a member and in 1900 treasurer of the Medical Association of Georgia; for six years secretary of the health department of Augusta, Ga.; a member of the local board of U. S. pension examining surgeons; died at the home of his brother in Summerville, Ga., August 12, aged 57.

Augustus Franklin Purington, M.D. Medical School of Maine, Brunswick, 1864; of Indiana, Pa.; assistant surgeon in the Army during the Civil War; a member of the Medical Society of the State of Pennsylvania; and formerly president of the Indiana County Medical Society; died at the Markleton Sanitarium, August 19, from heart disease, aged 75.

Levi Coke Stephens, M.D. Medical College of the State of South Carolina, Charleston, 1860; a member and former president of the South Carolina Medical Society and State Board of Medical Examiners; surgeon in the Confederate service during the Civil War; died suddenly at his home in Greenville, August 12, aged 71.

Elmer D. North, M.D. Detroit (Mich.) Medical College, 1881; a veteran of the Civil War; in 1871, superintendent of schools of Ingham county, Mich., and for twenty-one years a member of the local board of U. S. pension examining surgeons; was found dead in his apartment in Lansing, Mich., August 17, from angina pectoris, aged 68.

James M. Borglum, M.D. Homeopathic Medical College of Missouri, St. Louis, 1874; a member of the American Medical Association; for 34 years a practitioner of Omaha; died in his apartments in that city, August 29, from cerebral hemorrhage, five days after a runaway accident, aged 70.

William J. Jones, M.D. New York University, New York City, 1858; a member of the American Medical Association; an honorary fellow and once vice-president of the Medical Society of the State of North Carolina; died at his home in Goldsboro, June 27, aged 71.

Benjamin Ellis Martin, M.D. College of Physicians and Surgeons, New York City, 1861; assistant surgeon of Duryea's Zouaves in the Civil War, and later a member of the Agassiz expedition to South Africa; died at his home in New York City, August 19, aged 70.

Henry Sargent Knight, M.D. Jefferson Medical College, Philadelphia, 1878; a member of the Massachusetts Medical Society; and a member of the school committee of Worcester for many years; died at his home, August 22, from cerebral hemorrhage, aged 50.

Philo William Street, M.D. University of Vermont, Burlington, 1892; formerly a member of the American Medical Association; health officer of Suffield, Conn., and chairman of the school board; died at his home, August 27, from acute nephritis, aged 43.

George Reid (license, Mich., years of practice, 1900); formerly a member of the American Medical Association; for 36 years a practitioner of Reese, Mich.; died recently, at his home in that place from the result of a fall, and was buried August 21.

Zenas Sanford Loftis, M.D. Vanderbilt University, Nashville, 1908; formerly president of the Nashville Student Volunteer Movement; and a missionary at Batang, West China; died from smallpox soon after his arrival at his post of duty, aged 24.

Stella Hager-Colver, M.D. Woman's Medical College of Pennsylvania, Philadelphia, 1901; formerly of Philadelphia; a member of the Medical Society of the State of Pennsylvania; died in Dallas, Texas, August 20, from heart disease, after a long illness.

William H. Wells, M.D. Rush Medical College, Chicago, 1848; who went to California in 1849, and afterward practiced in Sacramento, Santa Clara, Solano and Fresno counties; died at the home of his daughter in Sacramento, August 15, aged 91.

William Palmer Wesselhoeft, M.D. Harvard Medical School, Boston, 1857; of Boston; once president of the International Hahnemannian Association; died at his summer home, York Harbor, Maine, August 24, from senile debility, aged 73.

Rhesa W. Read, M.D. University of Pennsylvania, Philadelphia, 1858; major and surgeon in the Confederate service during the Civil War; city physician and health officer of Texarkana, Ark.; died at his home in that city, August 3.

Byron S. Knapp, M.D. Cincinnati College of Medicine and Surgery, 1874; for fifteen years a member of the Owosso (Mich.) Board of Education; died at his home in Owosso, August 20, from cerebral hemorrhage, aged 64.

Jabez Parkhurst Bloss, M.D. College of Physicians and Surgeons, New York City, 1853; for two terms demonstrator of anatomy in the Woodstock (Vt.) Medical College; died at his home in Troy, N. Y., August 26, aged 82.

Frank Eugene Greene, M.D. Eclectic Medical Institute, Cincinnati, 1875; a member and secretary of the New England Society of Specialists; of Roxbury, Boston; died at his summer home in Swampscott, Mass., August 25.

John Emmett Burns, M.D. University of Wooster, Cleveland, 1874; for five years a member of the house staff of Charity Hospital, Cleveland; died at his home in that city, August 18, from heart disease, aged 58.

Robert Walker Robinson, M.D. Long Island College Hospital, Brooklyn, N. Y., 1884; of Auburn, N. Y.; a member of the American Medical Association; died at his summer home in Northport, Maine, August 20, aged 49.

Hamlet Sharp Garland, M.D. Kentucky University, Louisville, 1904; a member of the American Medical Association; died at his home in Oskaloosa, Iowa, August 27, from peritonitis following appendicitis, aged 26.

Samuel M. Plush, M.D. Penn Medical University, Philadelphia, 1876; a veteran of the Civil War, a pioneer in electrical development; died at his home in Arcola, near Pottstown, Pa., May 3, from dropsy, aged 69.

Charles E. L. McCauley, M.D. University of Pennsylvania, Philadelphia, 1853; one of the oldest practitioners of Montgomery county, Tenn.; died at his home in Clarksville, August 14, from senile debility, aged 79.

James William Rochelle, M.D. Kentucky School of Medicine, Louisville, 1893; a member of the State Medical Association of Texas; died at his home in Hooks, August 14, from diabetes and heart disease, aged 56.

Ezekiel Dawson, M.D. University of Pennsylvania, Philadelphia, 1853; surgeon of the Third Delaware Volunteer Infantry during the Civil War; died at his home in Baltimore, June 27, from senile debility, aged 78.

James Milton Carlton, M.D. Medical College of Georgia, Augusta, 1886; a member of the Medical Society of the State of South Carolina; died at his home in Mount Carmel, August 15, from angina pectoris, aged 48.

Allen De Turk Hunter, M.D. Jefferson Medical College, Philadelphia, 1884; a member of the Illinois State Medical Society; died at his home in Savanna, Ill., August 18, after an operation for peritonitis, aged 46.

Louis Feigenblatt, M.D. New York University, New York City, 1872; a member of the Medical Society of the State of New York; died at his home in New York City, May 13, from chronic nephritis, aged 71.

Lewis F. Layton, M.D. Tulane University, New Orleans, 1887; a member of the State Medical Association of Texas; health officer of Cameron county and Brownsville, Texas; died at his home, August 25.

Myron A. Shaw, M.D. Rush Medical College, Chicago, 1883; a veteran of the Civil War; for many years a justice of the peace of Durand, Wis.; died at his home, August 24, from heart disease, aged 72.

William Francis Swalm, M.D. College of Physicians and Surgeons, New York City, 1859; of Brooklyn, N. Y.; a veteran of the Civil War; died at Shelter Island Heights, Long Island, August 26, aged 73.

Henry T. Hunter, M.D. University of Pennsylvania, Philadelphia, 1861; for many years a member of the Medical Society of Virginia; died at his home in Norfolk, Va., August 5, aged 69.

James O. Ackerman, M.D. Hahnemann Medical College, Chicago, 1877; a veteran of the Civil War; died at his home in Fond du Lac, Wis., August 25, from disease of the stomach, aged 67.

James Irving Chapin, M.D. University of Pennsylvania, Philadelphia, 1903; of Philadelphia; died in a hotel in New Orleans, August 24, from the effects of an overdose of morphin, aged 30.

Daniel L. Sweeney, M.D. College of Physicians and Surgeons, Keokuk, Ia., 1882; a member of the Essex County (N. J.) Medical Society; died at his home in Newark, August 20, aged 61.

Louis A. Whitehouse, M.D. Bellevue Hospital Medical College, New York City, 1891; of Brooklyn, N. Y.; died suddenly at the Hotel Garde, New Haven, Conn., August 18, from heart disease.

Charles A. Ball, M.D. George Washington University, Washington, D. C., 1877; a member of the American Medical Association; died at his home in Washington, September 3, aged 58.

Robert Field, M.D. Tulane University, New Orleans, 1868; a Confederate veteran; formerly of Pocahontas, Miss.; died at his home in Hattiesburg, Miss., March 17, from influenza.

J. W. Etheridge, for many years a practitioner of Crystal Springs, Miss.; died at his country home, near that place, January 13, from locomotor ataxia, aged 69.

George A. Martin, M.D. Medical College of Ohio, Cincinnati, 1877; a veteran of the Civil War; died at his home in Brownstown, Ill., August 28, from nephritis, aged 64.

Lewis Harvey Jones, M.D. Barnes Medical College, St. Louis, 1894; died at his home in Ellenboro, W. Va., August 25, from the effects of an accidental overdose of morphin.

John Aloysius Allendorf, M.D. Harvard Medical School, Boston, 1903; of Charlestown, Mass.; died in Carney Hospital, Boston, August 24, from edema of the brain.

Charles Alexander Garnsey (license, Ill., years of practice, 1878); for 65 years a practitioner; died at his home in Batavia, Ill., August 19, aged 95.

John W. Rasmussen, M.D. Marquette University, Milwaukee, Wis., 1898; died at his home in West Allis, Wis., August 27, from acute gastroenteritis, aged 37.

Eleanor Handmacher, M.D. Cleveland Homeopathic Medical College, 1909; of Cleveland; died at St. Alexis' Hospital in that city, August 25, aged 23.

David Sullivan Stevenson, M.D. Lincoln (Neb.) Medical College, 1899; died at his home in Auburn, Neb., July 3, from cancer of the neck, aged 36.

Cyrus Francis Krauser, M.D. Long Island College Hospital, Brooklyn, 1865; formerly of Philadelphia; died in Brooklyn, N. Y., July 9, aged 70.

William S. Cockrell, M.D. University of Maryland, Baltimore, 1879; died at his home near Harper's Ferry, W. Va., August 27, aged 65.

Peter Walter Emmens, M.D. Eclectic Medical Institute, Cincinnati, 1876 of Syracuse, N. Y.; died in Binghamton, N. Y., August 22, aged 78.

C. H. Davidson (license, Utah, years of practice, 1894); died at his home in Brigham, June 12, from carcinoma of the stomach, aged 80.

Roy St. Clair, M.D. Willoughby (Ohio) Medical College, 1858; of Bloomfield, Iowa; died near Humeston, Iowa, July 23, aged 72.

William T. Thurman, M.D. Missouri Medical College, St. Louis, 1885; died at his home in Detroit, Ill., August 25, from nephritis.

John Walker Neil, M.D. Starling Medical College, Columbus, Ohio, 1859; died at his home in Delaware, Ohio, August 4, aged 74.

William Littlewood (license, Mo.); died at his home in Albany, Mo., August 12, from heart disease, aged 64.

Knud L. Boysen, M.D. Kiel, Germany, 1863; died at his home in Chicago, August 25, from nephritis.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phœnix, October 4-5. Sec., Dr. Ancil Martin.
COLORADO: Capitol, Denver, October 5. Sec., Dr. S. D. VanMeter, 1723 Tremont St.
GEORGIA: Regular, Capitol Bldg., Atlanta, October 12. Sec., Dr. E. R. Anthony, Griffin. Homeopathic: Atlanta, October 4. Sec., Dr. R. E. Hinman, 153 Whitehall St.
IDAHO: Boise, October 5-6. Sec., Dr. W. F. Howard, Pocatello.
ILLINOIS: Coliseum Annex, Chicago, October 20-22. Sec., Dr. J. A. Egan, Springfield.
IOWA: State House, Des Moines, September 21-23. Sec., Dr. Louis A. Thomas.
KANSAS: Topeka, October 12. Sec., Dr. F. P. Hatfield, Olathe.
LOUISIANA: New Orleans, October 1-2. Sec., Dr. Felix A. Larue, 211 Camp St.
MASSACHUSETTS: State House, Boston, September 14-16. Sec., Dr. Edwin B. Harvey.
MICHIGAN: Lansing, October 12-14. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: State University, October 5. Sec., Dr. W. S. Fullerton, 214 American National Bank Bldg., St. Paul.
MISSISSIPPI: Jackson, October 12. Sec., Dr. S. H. McLean.
MISSOURI: Kansas City, September 20-22. Sec., Dr. J. A. B. Adcock, Warrensburg.
MONTANA: Capitol, Helena, October 5. Sec., Dr. W. C. Riddell.
NEW JERSEY: State House, Trenton, October 19-20. Sec., Dr. E. L. B. Godfrey, Camden.
NEW YORK: Albany, September 21-24. Chief of Examinations Division, Charles F. Wheelock, Albany.
NORTH DAKOTA: Grand Forks, Oct. 5-7. Sec., Dr. H. M. Wheeler.
OKLAHOMA: Ione Hotel, Guthrie, October 13. Sec., Dr. Frank P. Davis, Enid.
RHODE ISLAND: Room 313, State House, Providence, October 7-8. Sec., Dr. Gardner T. Swarts.
UTAH: Room 207, City and County Bldg., Salt Lake City, October 4-5. Sec., Dr. G. F. Harding, 310 Templeton Bldg.
WYOMING: Laramie, October 20-22. Sec., Dr. S. B. Miller.

Preliminary Education and the College Entrance Examining Board

As has been already stated (THE JOURNAL, Aug. 14, 1909, p. 580), no part of the published standards of colleges and state examining boards has been so badly enforced as that relating to preliminary education, chiefly on account of the endless variety of secondary schools and the extreme difficulty of placing the proper value on entrance credentials. When the student has a diploma from a high school the difficulty is not so great since most universities have lists of "accredited" schools and therefore the standing of the high school can be learned. The difficulty arises when the student presents credentials for a year here, a year there and a year somewhere else, with no diploma from anywhere. This is an instance with no end of variation. The difficult question is: "Has the applicant the equivalent of a four-year high-school education?" State boards are trying to deal with the problem and college deans are struggling with it, but, in spite of all, many deplorably weak and badly prepared students are annually admitted to our medical schools.

What we need to-day more than anything else, is an honest, intelligent enforcement of preliminary requirements. One way to bring this about would be to abolish the "equivalents." When the student has a diploma from a high school which is really accredited by a standard university, admit him. If he doesn't have such a diploma require an examination. Who shall conduct the examination, the college, the state board, a high-school teacher, a state superintendent of public instruction, or some one else? All these plans are in vogue now, resulting in an endless variety and confusion of tests from the signing of certificates in blank or the asking of a few oral questions up to a thorough examination which doubtless really does insure that the applicant has the equivalent of a four-year high-school education.

But why go to all this needless bother and permit this confusion when we have at our very doors a board of entrance examiners, the members of which are chosen because of their skill in deciding the fitness of those who are to enter colleges and universities. A passing mark from the college entrance examining board could be relied on as the best evidence that the student really has the equivalent of the high school education. Why should not all those who do not hold diplomas be referred to this board for examination? That procedure would do away at once with all suspicion of graft, fraud or error and insure that our four-year high-school standard was being strictly adhered to. Any medical school which should insist that all its entrance examinations be conducted by that board would at once place itself above the suspicion of permitting a feeble enforcement of its preliminary standards for the sake of obtaining more students.

That the college entrance examining board furnishes a possible solution to the problem is evidenced by the fact that it already holds entrance examinations for twenty-seven colleges and universities, eight of which have medical departments. Its functions might, with little difficulty, be extended to other colleges and medical schools, since in June, 1908, entrance examinations were held in 165 different cities, in 41 different states, and altogether 3,250 candidates were examined.

But whether that board be chosen to conduct entrance examinations or not, the fact remains that medical education should be lifted above the suspicion of purposely adhering to low standards for the sake of securing fees from a few more students. If any college can not honestly enforce its standards for admission and continue to exist then it should at least die an honorable death.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

The Public Health Movement in Kentucky

The August issue of the *Kentucky Medical Journal* is a Public Health Number and is devoted largely to a discussion of public health matters in Kentucky. It is not only a marked innovation but is also an example to other state society journals of what can be done to awaken interest both in the profession and the public and to inaugurate a sweeping and practical reform along public health lines. The reason for the appearance of the Public Health Number at this time is the work recently completed in Kentucky by Mrs. Caroline B. Crane, who came to Kentucky on the invitation of and under the auspices of the State Federation of Women's Clubs, the public health officers and the medical profession. An introductory editorial says:

"At the request of the State Board of Health, this is made the health number of the *Journal* and is devoted largely to reports made by Mrs. Crane, giving the results of inspections of the various towns and cities visited by her and her final report on 'The Sanitary Condition and Needs of Kentucky.' . . . It is a matter of regret . . . that Mrs. Crane could not be sent to every county in Kentucky. As this could not be done, twelve cities and towns were carefully selected, representing as far as possible every type as to population, water-supply, drainage, dairies, slaughter-houses and other conditions affecting health and life. As some of these conditions she describes and criticizes have their counterpart in every community, rural and urban, health boards, civic leagues and similar organizations can easily utilize them in working out their own problems."

Regarding the results of her work in Kentucky, the *Journal* says:

"Within less than twenty-four hours after her closing meeting in Louisville, the county judge had inspected and condemned the almshouse, and the fiscal court, called in special session for that purpose, had made a generous appropriation for alterations. Prominent laymen called a meeting the following week at Frankfort to organize and inaugurate the reforms suggested by her. There was such a popular demand for dairy reforms and healthy cows that the State Board of Health was enabled to issue a sweeping proclamation providing for the tuberculin test and for improvement in the physical condition of dairies and the handling of milk, and it is hoped that trained settlement workers and nurses will soon be employed in the larger cities and towns to instruct mothers and others in the care and feeding of children and invalids."

The *Journal* also quotes editorially from Mr. Desha Breckenridge, who says in the *Lexington Herald:*

"Irrespective of party every citizen ought to rejoice in any course which will improve the public service and make better conditions in public institutions. Our whole system in Kentucky is rotten. We doubt if there are twenty out of the one hundred and nineteen counties in Kentucky in which the jail is fit for the habitation of hogs much less than human beings. . . . The great majority of our poorhouses are a disgrace to civilization. . . . We are just awakening in Kentucky to the need for the observation of the laws of sanitation, just beginning to understand that there is no higher province of government than care for the health of the citizens. . . . The greatest value from such visits as Mrs. Crane's is the rousing of public conscience, the exciting of the public interest, the increase in the desire of citizens to know conditions in every part of the city in which they live and in every institution supported by the taxes which they pay."

Forty-three pages are devoted to an extended report of the sanitary condition and needs of Kentucky, in which Mrs. Crane summarizes the results of her investigations. The statements made are in each case based on personal observation and knowledge of the facts. In addition, copies of the reports were sent to the State Board of Health, State Pure Food Commission, and the State Federation of Women's Clubs.

A copy of the report on each city was given to the local board of health; and in most instances this report was published in the local papers. After as careful investigation of the sanitary condition and needs of each of the twelve cities as was possible under the circumstances, Mrs. Crane addressed an audience of citizens of the city, setting forth the result of her investigation and making suggestions and recommendations as to the improvement of local conditions. General sanitary conditions in the state were first discussed under the heads of water-supply, sewage and drainage, street sanitation, markets, meat inspection, milk inspection and dairies, school sanitation, tuberculosis, housing conditions, almshouses, jails, workhouses and boards of health, this discussion being followed by special reports on each city visited. Of the twelve cities in question, only five have undertaken any solution of the problem of furnishing pure drinking-water for their citizens. In the other seven, untreated river-water containing the sewage of cities farther up the river is supplied to the citizens by the municipality. These seven cites, although they in the main defend the purity of their water-supply, are seldom free from typhoid fever; yet it is only when there is a violent outbreak and increase in the number of cases that purification of the water-supply is seriously discussed. Mrs. Crane holds that the only solution of the water problem is to furnish pure water, accessible and plentiful to the humblest family, and that a study of vital statistics in the cities which have a pure water-supply should convince any one of the wisdom and economy of this measure. This question is of special interest to women as it affects every household.

Regarding sewerage and drainage, Mrs. Crane states that in almost every one of the cities visited some beautiful creek or

river has been transformed into an offensive open sewer by the discharge of the city's sewage into it, making it, especially during the drought of summer, a serious menace to health. Good sewers are worth much more than good roads and each city should, if necessary, issue bonds in order to secure a proper sewage and water-supply system.

Street sanitation and the collection of garbage are very carefully considered in Mrs. Crane's report, and the cremation of all waste is strongly advised. Regarding markets, Mrs. Crane suggests the frequent visitation of committees of good housekeepers into the back rooms and hidden places whence the food supply issues as a remedy for the frightful uncleanliness found in many of these places. Regarding the meat inspection, most of the cities visited seem to be aware of the importance of a clean and wholesome meat supply, but in only a few of them was a sufficient money appropriation made to permit of meat inspection being properly carried on. Special stress is laid on the importance of rigid inspection of dairies, sources of milk-supply and the attention of women's clubs is particularly called to this most important matter. School sanitation, including the consideration of school houses, ventilation, heating and lighting, water-supply and toilet facilities is carefully considered. In this connection Mrs. Crane pertinently remarks:

"Let us remember always that the aim of schools should be to teach children how to live. If we can teach cleanliness and propriety and the use of fresh air, we shall do something worth while. Let us not teach them in the physiology lesson and give the lie to them in the basement."

In discussing housing conditions, Mrs. Crane states that there are in Kentucky, especially in Louisville, Lexington and Frankfort, tenement houses and hovels absolutely unfit for habitation, conditions in Frankfort, the state capital, being by far the worst. Careful consideration is given to county almshouses, in which the inmates were found in many cases to be objects of peculiar neglect, being left almost entirely to their own resources amid surroundings of discomfort, filth and pitiable neglect. Detailed comments of her visits to these reveal almost unbelievable conditions, while the jails are described as medieval types of architecture, unfit places in which to house human beings for any prolonged period. When to the darkness and gloom is added untidiness and filth, these places become hotbeds of disease and contagion as well as schools of crime. Workhouses, local boards of health and state institutions are also carefully considered.

It is impossible to give the details of Mrs. Crane's inspection of the twelve cities visited, but the special reports on these twelve cities should be carefully read by every one interested in public health conditions and problems. These twelve Kentucky cities are probably fair samples of cities of the same size and conditions in other states and, without doubt, an equally careful inspection would reveal as bad or worse conditions in any of our towns and cities. If any county medical society is at a loss to know how to awaken interest in the medical profession of the county and how to secure the cooperation and support of the public, let it take up systematically the inspection of the towns and cities within its boundaries, investigating the sources of water, food and milk-supplies, the manner and effectiveness of sewage and garbage disposal and the condition and management of public institutions, including jails, workhouses, poorhouses, etc. It is safe to say that any county society which will devote two weeks to a careful effort to learn the exact conditons existing along these lines will find that it has discovered all the work which it can possibly do for several years to come, and has brought its energies and activities to bear on questions which are of vital interest to the community.

The best proof of the fact that the times are ripe for such work is the reception given Mrs. Crane by the public press of Kentucky and the large audiences which greeted her everywhere after the nature of her work was understood. Space does not permit of extended quotations, but the following is typical. The Cynthiana *Log Cabin*, commenting on Mrs. Crane's visit, says:

"Cynthiana is having an awakening on the subject of sanitation and it may be that increased diligence on the part of our people may avert an epidemic such as our neighboring city of Georgetown has just experienced. Business was to an extent paralyzed and many lives lost by the recent epidemic of typhoid fever, which was due to contaminated water-supply and filthy premises in some sections of the town. . . . Many people think the Chinese are working backward when they employ doctors by the year to keep them well, but are they? Harrison county and Cynthiana combined spends $300 per year for health officers to avert epidemics while the people themselves pay the doctors $30,000 to $50,000 to treat their diseases. Our people are slowly but surely learning the inestimable value of proper sanitary precautions and cleanliness which will save much sickness in years to come."

The work of Mrs. Crane and of the *Kentucky Medical Journal* has aroused an unprecedented interest in public health matters in Kentucky which will be productive of marked and lasting benefit to all her citizens. The lesson to medical socities is to take up the work that lies nearest at hand and to preach the gospel of modern cleanliness and right living. It has been said that personal cleanliness is a discovery of the last century. Civic cleanliness seems to be a discovery of the last decade. Present conditions offer a wonderful opportunity to the medical profession to lead the way in the campaign for sanitary reform. If we fail to do our duty it will be taken up by others. If we embrace the opportunity the debt of the public to the medical profession, as well as our influence with the people, will be greatly increased.

The question of the proper activities for county and state medical organizations has been much discussed in the past few years which have witnessed such an enormous increase in medical organizations and in the interest displayed in them. In many cases county societies, after preliminary organization work was completed, have apparently been at a loss to know in what direction to turn their energies. A number of county societies, recognizing the constantly growing importance of preventive medicine and the duties of the medical profession to the public in this respect, have taken up some special line of work connected with municipal or county sanitation. This tendency has not been as marked as the importance of the subject demands, but it is an encouraging sign of the possibilities of the future. The work done in Kentucky as set forth in the *Kentucky Journal* may well be taken as a model by our other state associations and state journals. No county can feel that its duty is done so long as sanitary conditions in the county remain uninvestigated and unimproved. In no way will medical societies so clearly demonstrate their reason for existence or so readily secure the support and confidence of the people.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Third Year—First Month, Second Weekly Meeting

SURGERY OF CHEST WALL

CONTUSIONS OF THORAX: Local symptoms; association of fracture of rib, rupture of lung, pleura or diaphragm. General symptoms; relation of shock to portion of chest injured. Sequelæ, their dependence on viscera injured

NON-PENETRATING INJURIES OF THORAX: Varying character of wounds. Indications in treatment; shock, fractures, hemorrhage, infection.

PENETRATING INJURIES OF THORAX: Character of external wounds. Symptoms; dependence on location and severity of injury; shock, dyspnea, pain, cough. Physical examination, injury to pleura or lung, pleuritic exudate. Prognosis, in fractures, hemorrhage, injury to lung, in gunshot wounds.

TUMORS OF CHEST-WALL: Benign tumors; lipoma, fibroma molluscum, angiomata, keloid, osteoma and chondroma. Malignant tumors; sarcoma and carcinoma, primary or secondary.

OSTEOMYELITIS OF RIBS AND STERNUM: Varieties, septic, typhoid, tuberculous, syphilitic. Differential diagnosis and treatment of tuberculous and syphilitic varieties.

Book Notices

SURGERY OF THE UPPER ABDOMEN. In Two Volumes. By John B. Deaver, M.D., LL.D., Surgeon-in-Chief to the German Hospital, Philadelphia, and Astley Paston Cooper Ashhurst, M.D., Surgeon to the Out-Patient Department of the Episcopal Hospital, Philadelphia. Vol. I: Surgery of the Stomach and Duodenum. Cloth. Pp. 468, with illustrations. Price, $5. Philadelphia: P. Blakiston's Son & Co., 1909.

The first 30 pages of this volume are devoted to the topographic anatomy of the stomach and duodenum. The latest views concerning the relations of the viscera in question are given, but we regret that more attention has not been given to a discussion of the duodenojejunal angle. Almost twenty years ago Jonnesco described the anatomy of this angle accurately. Surgeons seem to have overlooked this work almost entirely, and are just beginning to realize that the beginning of the jejunum in about 20 per cent. of the cases passes downward and to the right, while in the remaining 80 per cent. it passes downward and to the left. These two forms are associated with definite fossæ, indicating that the direction of the jejunum in the two cases is anatomic. Jonnesco's work should be reviewed, as it has apparently been forgotten by surgeons. Twenty-five pages are devoted to physiology, in which are embodied the latest views concerning secretin and the interaction of intestinal juices. The chapters devoted to gastric ulcer and carcinoma are worthy of much consideration and will receive general approval.

The statements made concerning the treatment of pyloric stenosis in infants on pages 138, 139 and 140 will be disputed by many. Medical treatment will undoubtedly cure in a spasmodic case, but there is a type which medical treatment will not influence. Delay even of a few days in cases of this type increases the mortality. The large number of deaths in cases of this type is due to the fact that the operation has been performed as a last resort when the patient was in a critical condition. While it may seem "inherently wrong to start children off on what it is hoped may be a long life with their gastrointestinal tract so distorted as it is after even the most skilfully executed gastrojejunostomy," the fact remains that this operation performed in time relieves the condition most rapidly and with the greatest percentage of cures, and in most cases is the only operation that can be attempted with any guarantee of permanent cure with safety.

On page 382 is discussed the position of the primary loop of the jejunum. As previously mentioned Jonnesco described several years ago a number of cases in which this loop of the intestine ran in the inferior layer of the transverse mesocolon, being turned downward and to the right in this way. This relation occurs about as frequently as that described by Mayo, in which there is a mesocolic band. It is still a question whether the division of the band as described by Mayo is not an unessential refinement of technic.

The book is beautifully written and is systematically arranged. The facts concerning the surgery of the stomach and duodenum as they exist at the present time are clearly given. One of the most valuable features of this book is a carefully selected bibliography. It is a volume which both the physician and surgeon should have as a reference book.

SLEEPING SICKNESS BUREAU. Bulletin No. 3. January, 1909. Paper. Pp. 128. London: Sleeping Sickness Bureau, Royal Society, Burlington House, W., 1909.

This bulletin summarizes the rational prophylaxis against sleeping sickness so far as it is known at this time. A large part of the bulletin is taken up with a consideration of the life history, habits and distribution of the tsetse fly, *Glossina palpalis*. This, of course, is of prime importance, for effective prophylaxis depends to a large degree on a reduction in the number of flies, and on avoidance of localities infected by them. The propagation, the relation of the fly to season, altitude, sun and shade, temperature and humidity, its food supply, enemies and diseases, range of flight, and particularly its close association with bodies of water are discussed.

Methods of prophylaxis are classified under four heads.

1. Attacking the fly in its haunts. The natural abode of the fly is in the brush on the banks of streams or other bodies of water, and here it propagates. It is said that clearing a strip thirty yards wide along the bank of a stream will banish the fly from the strip and also from the country which lies behind it. Pools should be drained or filled, plants noxious to the flies, and animals (birds) which feed on them, should be introduced.

2. The removal of healthy persons from the vicinity of the fly, or their protection from fly-bites. A. Villages or markets should be removed to fly-free areas. B. Occupations carried on in fly areas should be discouraged or forbidden. C. Fly areas should be avoided in the heat of the day, when the flies are most active. D. Roads should be selected which do not traverse fly areas. E. Protection should be afforded by the wearing of suitable clothes, by wire gauze, etc. F. Volatile oily substances should be used to keep off the fly. G. natives should be instructed.

3. The prevention of access of trypanosome-carriers, i. e., infected persons, to fly areas. A. The sick should be segregated away from the fly. B. The moving of persons from infected to uninfected districts, when these contain fly areas, should be prohibited. C. The passage of persons harboring trypanosomes from one infected district to another should be prohibited.

4. Treatment of infected persons, by one of the trypanocidal agents, as sodium aminophenyl arsenate (atoxyl) in order that the peripheral blood may be freed from parasites. In this way the infection of flies may be prevented to some degree.

From this presentation one gains an idea of the herculean task which confronts the colonizers of tropical Africa in their campaign against sleeping sickness.

HANDBOOK OF OBSTETRICS. By R. Cadwallader, A.M., M.D., Assistant in Obstetrics, University of California, Medical Department, San Francisco. Cloth. Pp. 370, with illustrations. Price, $2. Philadelphia: F. A. Davis Co., 1908.

The handbook has advantages over the text-book that probably will be recognized more and more. By the use of thinner paper, slightly smaller type, and thin, somewhat flexible, covers, it is possible to give nearly as much of practical value in 370 pages at the moderate price of $2 as is contained in the ordinary text-book of 600 to 800 pages in a book weighing and costing two or three times as much. Dr. Cadwallader says that he has endeavored to eliminate all possible extraneous matter and to condense into a small volume the essential facts of obstetrics; at the same time he could not resist the temptation to give personal opinions and experiences. In general he has succeeded in his object, but certain blemishes detract from the worth of a book we would otherwise gladly commend.

One of the most obvious defects of the book is the confusion in arrangement of subjects. In the chapter on "Physiologic Puerperium-Fetal" are described asphyxiation of the child, death of the fetus, monstrosities, injuries at birth, umbilical hemorrhage, etc. Inflammation of the decidua is described under "Pathology of Gestation—Fetal." "The Pathology of Pregnancy—Toxemias" is described in Chapter 26, while "Pathology of Gestation—Maternal" is the subject of Chapter 14. The discussion of sepsis is separated by a number of chapters from the pathology of the puerperium.

A number of grammatical errors also show hasty or careless preparation. For example, on page 7 one reads: "Because of the better development of the right side of the body, the right side of the pelvis is often slightly so;" on page 133: "The doctor should call twice daily at first, and as nearly as possible to the minute, for they often worry if he is late." On page 18 "molimina" is misspelled; on page 135 we find the curious plural form "sini," and on page 149 the equally curious "amnia." On page 87 we find the name "Skutsch" misspelled, and on page 108 a mistake in the name "Schultze."

Certain colloquial and facetious phrases are hardly suitable in a scientific book; a few examples of these blemishes may be noted. Reference, in the last paragraph of page 22, to the emotional life of a woman during the obstetrical years, should be omitted; also the advice concerning coitus on page 29: "It should be rare, not as a matter of routine like saying one's prayers or t. i. d." On page 104, speaking of sleep as a dangerous symptom toward the end of labor, Dr. Cadwallader remarks, "I much prefer to hear her swear." Likewise the description of the obstetrical cry on page 104, and the description of the mother's joy on hearing her first-born's cry sound

rather out of place. The same can be said of the remark concerning the condition of a patient during the first stage of labor: "'One old hen' remarked to me that at such times she could neither 'lay nor set.'" The remarks on the failure of clergymen to warn their congregations concerning the dangers of criminal abortions would better be omitted, as well as the advice, on page 150, to the physician concerning the management of monstrosities.

Similar evidence of insufficient care in correcting the manuscript or in revising the text appears in some of the scientific statements and rules of treatment. The definition of eutocia on page 99 giving twelve hours as the limit of normal labor and twenty minutes as the length of the third stage is an example; likewise the statement on page 100 that the L. O. A. position occurs in 97 per cent. of all births. On page 112 premature rupture of the membrane is confused with "dry labor." On page 117, discussing the third stage of labor, the singular statement is made that "after half an hour there is danger of the os contracting enough to hold up the placenta like a button in a buttonhole, and it is better to go up and pull down one edge." Speaking of the puerperium, we find: "If it [the baby] cries up will go her temperature and pulse;" on page 144: "Male children should have the foreskin worked back daily and kept from adherence to the glands. . . . In females, the hood of the clitoris should be likewise treated." The following statement, found on page 288, hardly agrees with the average experience: "The use of chloroform (for forceps operation) is not needed except when the woman is very hysterical. It is far better not to use it. There is no pain and this assurance will generally suffice."

It is to be regretted that an author who is evidently a well-informed and interesting teacher should allow inconsiderate statements to disfigure a book that might have been a valuable addition to our obstetric literature.

THE BODY AT WORK. By Alex. Hill, M.A., M.D., F.R.C.S., Sometime Master of Downing College, Cambridge. Cloth. Pp. 448, with illustrations. Price, $4.50. New York: Longmans, Green & Co.

This book is not intended for the medical or scientific student but for the amateur. It is therefore written in untechnical language and, although it does not avoid the debatable fields of the subject, it makes no attempt to present the full evidence in any case, and gives only so much of the line of argument as is necessary to an understanding of the conclusion. Mr. Hill forestalls criticism on this score by saying: "If my treatment of vexed questions is unjustifiably dogmatic, this will, I trust, be attributed to the desire to present a definite picture, and not to forgetfulness of considerations which seem to call for qualified statements." He has succeeded in presenting a definite and an interesting picture of the phenomena of life; and, while possessed of considerable mastery over apt phrases and homely, enlightening comparisons, he does not seem to be carried away by his own facility for phrase-making. It is perhaps an excess of scruples against taxing the capacity or patience of the average reader that has led him to omit, "save in a few classical instances," the names of all authorities. While of course elaborate or exhaustive references to authorities would have been out of place in a popular book, we believe that a little more freedom in the citation of the names which are associated with the most important discoveries in physiology would have been of interest as well as of value, even to the unscientific reader.

MANUAL OF THERAPEUTICS. Referring especially to the Products of the Pharmaceutical and Biological Laboratories of Parke, Davis & Co. Limp Leather. Pp. 643. For free distribution to physicians, on request. Detroit, 1909.

This is a rather pretentious book for gratuitous distribution. In one way it may be said to be an extended price-list with the prices left off; that is, it is an alphabetical list of the materia medica, itemizing all the forms and combinations in which the various drugs are available. In addition, however, are almost 100 pages of valuable information, such as tables of measures and equivalents, an obstetric calendar, eruptive fever table, food percentages, diet tables, lists of poisons and antidotes, synonyms, a vocabulary of medical Latin, classification of remedies according to physiologic action and classification of remedies by diseases for which they are indicated. These help to make the manual practical and worthy of constant use.

A SYSTEM OF DIET AND DIETETICS. Edited by G. A. Sutherland, M.D., F.R.C.P. Cloth. Pp. 893. Price, $10.50. New York: Oxford University Press.

The Oxford medical publications have achieved an enviable reputation which this addition to it well sustains. Each of the nineteen contributors to the "system" is responsible for his own department, and, as the editor says, each was asked to give his "own views and experiences rather than to make a collection of all the views of different authorities." Thus the views and methods of practice of these men is given in a way that is very valuable to the practitioner. Unlike many works on dietetics, the book is free from "freak" views and fads, a sane and conservative tone dominating the whole work. This characteristic is nowhere more evident than in the chapter on "Alcohol in Health and Disease," by Dr. Harry Campbell. The least satisfactory chapter in the book is that by J. Rose Bradford, who discusses "Diet in Diabetes" in less than eleven pages. Not only is this subject dealt with in an abbreviated manner which, considering its importance, is entirely unwarranted, but several important points are not touched on at all. For instance, the need of regulating the quantity as well as the kind of food in treating diabetics, is entirely ignored. In an excellent chapter on the treatment of obesity, various fake remedies are shown up and their composition given. Most of these are of British origin and the American physician will be surprised to read in regard to these proprietary fakes that "fortunately thyroid extract is not used, its dangers are too great for even the most reckless advertiser." Evidently Dr. Edmund Cautley, who writes thus, is not familiar with the ways of the American nostrum vendor or he would know that the most widely sold "obesity cures" in this country depend for their action on thyroid extract. The chapters on "The Feeding of Infants and Children in Health" and on "Diet in the Diseases of Children" are by the editor of the "system," Dr. G. A. Sutherland, and both are excellent. The work is one that every physician who realizes the importance of diet in health and disease—and there are few modern physicians who do not—will do well to add to his library. Although this is a large, 900-page book, the light-weight but opaque, unglazed paper makes it easy to handle, while the clear type and widely spaced lines make reading a pleasure.

THE PRACTICAL MEDICINE SERIES. Edited by Gustavus P. Head, M.D., Professor of Laryngology and Rhinology, Chicago Postgraduate Medical School. Vol. 1. GENERAL MEDICINE. Edited by Frank Billings, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, A.M., M.D., Professor of Medicine, Chicago Clinical School. Cloth. Pp. 403, with illustrations. Price, $1.50. Series 1909. Chicago: The Year-Book Publishers.

This is the first of the ten volumes of the series for the present year and is also the first of the two sections that appears on the subject of general medicine. It contains a carefully selected summary of the literature of the preceding year on the diseases of the respiratory and circulatory organs, diseases of the ductless glands, metabolic diseases, and diseases of the kidneys. This volume, in common with the rest of the series, is written primarily for the benefit of the general practitioner and the arrangement and the selection of the subjects adapt it to this purpose. The sections devoted to tuberculosis and diseases of the heart, respectively, deserve especial notice. The book is well illustrated and contains complete indexes, both of subjects and of authors. The volume should prove of more than ordinary interest and value to those physicians who are careful to keep in touch with newer methods of treatment and the more exact methods of diagnosis.

RUDIMENTS OF LATIN. With Special Reference to the Nomenclature of the U. S. Pharmacopeia, the National Formulary and the Text-Books in Materia Medica and Botany. Including also Prescription Writing and Notes on the Nomenclature of the German Pharmacopeia. By Julius Williams Sturmer, Ph.G., Professor of Pharmacy, Purdue University, Lafayette, Ind. Cloth. Pp. 92. Price, $1. Published by the author.

This little book is in no sense an exhaustive one; in fact, Professor Sturmer specifically states that he has included only such portions of grammar as are required for the correct use of medical nomenclature. He has used the same matter in the class-room for several years in manuscript form and has thus tested its efficiency.

Medicolegal

Pyemia, "Pennyroyal Pills" and Evidence in Abortion Case

The Supreme Court of Indiana says, in Carter vs. State, where an indictment charged said Carter with producing a woman named to miscarry from taking "a certain drug, medicine, and substance," that the woman died from "pyemia" (pus in the blood produced by a germ shown to be introduced invariably from the exterior), and that the accused laid stress on the fact of this cause of death, arguing therefrom that some means other than drugs or medicines were used by which infection was produced. But that was simply one presumption built on another. The gravamen (essence) of the offense, under section 2256 of Burns' Annotated Statutes of Indiana of 1908, is prescribing or administering to a pregnant woman, or woman supposed to be pregnant, any drug, medicine, or substance whatever, with intent to produce a miscarriage, or the suggesting, directing, or advising the use of any instrument or means whatever with such intent, whereof the woman miscarries or dies, miscarriage not being necessary to preserve her life. In this case death occurred in about two months after the miscarriage, but the offense is complete when the miscarriage is produced contrary to the statute.

It was insisted by the accused that there was no evidence in the record that the "drug, medicine, or substance" taken by the deceased at his instigation produced the abortion. But the court holds otherwise, it being shown, among other things, that he procured and urged her, over her objection, to take what he told her were pennyroyal pills for the purpose of procuring a miscarriage; that she took them as he directed, taking the last one on Sunday evening, and aborted Thursday night; that she took nothing except what he had given her, and did nothing else. The ingredients of the "pennyroyal pills" which she took were not known or shown, but "pennyroyal pills" are an emmenagogue, and are used for that purpose, and is a name given to some two dozen varieties of compounds of various substances, including ergot, an emmenagogue. It was true that there was evidence that pennyroyal pills will not produce miscarriage, this evidence being based on the supposition that pennyroyal pills are made of pennyroyal; but the evidence also showed that it is a name used for compounds which are emmenagogues, and that they are such compounds, and, while there was no evidence as to the compound in the particular pills, the accused evidently understood their uses, and procured them, and urged the woman to take them for the express purpose of producing her miscarriage.

There was also evidence that no medicine can be said to be sure to produce a miscarriage, and that nothing but mechanical means can be so relied on; but that many kinds of medicine may and do produce miscarriage, depending on the physical condition of the female. The evidence showed that the woman had an adhesive womb, and that the likelihood of miscarriage was greater, both from natural and artificial means, than in case of the normal womb, and it was argued that an abortion was inevitable, and could as well be ascribed to the peculiar condition of the womb as to some unknown drug, medicine, or substance. If the position of the accused was correct on that point, it only accentuated the offense by showing that the woman was in a condition the more readily to abort by the use of pennyroyal pills. But the evidence showed a medicine, drug, or substance given, the specific properties of which were to contract the female womb, and produce menstruation, or miscarriage; that it was procured by the accused, and urged by him to be taken for the specific purpose on his part of producing a miscarriage, and that it was taken as directed by him, and that a miscarriage resulted. The evidence also showed that the woman became very ill, and was unconscious and unattended when the miscarriage resulted, and for a day or two afterward, and the conditions could be better imagined than described, so that the opportunities for the infection from which death actually resulted were doubtless attributable to these conditions, but they did not avoid the force of the evidence on the one question which constituted the crime with which the accused was charged.

Complaint was also made of the refusal of certain evidence offered, claimed as part of the res gestae (essential circumstances of the case)—that some days prior to the taking of medicine the woman had made inquiries as to mechanical methods of producing miscarriage. At most, it could only be an inference that she might have used some mechanical means, and that such means might have produced her miscarriage, and inferences can not be built on inferences. It is manifest that such evidence was not competent as a part of the res gestæ when shown to be a matter of inquiry only, and made some days before the taking of the medicine, and unconnected with any act or declaration of intent, and especially when taken with the other evidence in the case, in which it was disclosed that nothing was used but the drugs procured by the accused, and was clearly not admissible under the evidence and charge here of producing an abortion by medicines or drugs.

Under these circumstances the court holds there was evidence to support every material fact necessary to constitute the offense charged, and affirms a conviction.

Admissible Evidence When Attending Physician Was in Employ of Defendant

The Supreme Court of Minnesota holds, in the personal injury case of Brown vs. Minneapolis, St. Paul & Sault Ste. Marie Railway, Co., that a witness having testified that he knew in whose employ a physician was, it was error to refuse to allow him to state whether or not the physician was in the employ of the defendant. In this case it was sought to fasten on the railway company liability for injuries which it was contended were caused by the explosion of a torpedo negligently left on the track. After the accident the plaintiff was taken to a hospital where his injured eye was removed. It was claimed that a small piece of tin was removed from the eye, and for the purpose of showing that fact, and statements made by the physician, the plaintiff offered to show that the physician was at the time in the employ of the defendant company. As the plaintiff's counsel put it, he proposed to show that the physician who performed the operation was the company's physician, in its employ, and that any declaration made by the physician to the plaintiff was admissible in evidence as that of an agent of the company, against interest. The court holds that it was error to exclude the evidence, it being material to the plaintiff's case as it tended to connect the injury with what the plaintiff claimed was the cause of the action. It says that if the physician was, at the time of the operation, in the employ of the railway company, it was competent for the plaintiff to show statements made by him at the time as to the condition of the wound and that the article which he then exhibited to the patient had been taken from the eye.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

August 28

1 *Serology of Syphilis. R. C. Matson, Portland, Ore.
2 *Scarlatina and Diphtheria Successfully Treated without Medicine. W. H. Thomson, New York.
3 *Large Glioma Growing from the Basal Ganglia Producing Symptoms Suggestive of a Growth in the Frontal Region. T. Diller, Pittsburg.
4 Diagnosis of Tricuspid Stenosis. D. Felberbaum, New York.
5 Unusually Intractable Case of Iritis. Etiology of Iritis. W. C. Posey, Philadelphia.
6 Early Diagnosis of Pulmonary Tuberculosis. L. M. Gaines, Atlanta, Ga.
7 *Estimation of the Urinary Ammonia, and New Instrument for its Rapid Estimation. H. R. Harrower, Chicago.

1. **Serology of Syphilis.**—Speaking of the Wassermann reaction, Matson says that the rarity of a positive reaction in normal serum and the high percentage of positive reactions in syphilis or suspected cases clearly shows the test to be of much value. A positive reaction is found with the greatest frequency in early cases, and least frequently in latent cases.

A positive reaction means that active syphilis exists, but does not necessarily mean that the present pathologic condition is due to syphilis that must be determined clinically; but it does indicate that there should be a trial of antisyphilitic treatment. A negative result may be interpreted in many different ways. A negative reaction occurring in one who has had syphilis does not mean absolutely that the patient is well, but that the infection, if present at all, is quiescent. If a negative reaction occurs in an early suspected case, it is from 95 to 100 per cent. against syphilis. If obtained in a suspected secondary case, the chances are from 75 to 95 per cent. against syphilis. If obtained in a suspected latent case, the chances are from 50 to 75 per cent. against syphilis. If obtained in a suspected parasyphilitic case, the chances are 70 to 80 per cent. against its existence. Since antisyphilitic treatment may cause the reaction to disappear it may be an index as to the efficiency of a line of treatment in that particular case.

2. Abstracted in THE JOURNAL, June 19, 1909, p. 2017.

3. **Glioma of Basal Ganglia.**—Diller describes a case of glioma of the brain with optic neuritis, headache, confusions, slowness of mind, loss of memory and absence of any hemiplegia, or other paralysis, which was very suggestive of a tumor of the frontal lobes. Autopsy showed a glioma in the right hemisphere the size of a Tangerine orange. An exploratory operation did not reveal any tumor, but gave great relief to the headache and eye symptoms.

7. **Estimation of Urinary Ammonia.**—Harrower uses a graduated tube of glass. The test is made by filling the tube up to the 10 mark with the urine to be tested, and adding 3 drops of an indicator, in the form of 0.5 per cent. solution of phenolphthalein in 50 per cent. alcohol; then 3 or 4 grams of a potassium oxalate solution are added and the tube filled with water to the zero mark. The tube is closed, shaken and decinormal soda solution added up to a pink color. The total acidity is read off and marked down. Then 2 or 3 c.c. of dilute formalin solution are added. The pink color is discharged by the acids; and decinormal soda solution is again added till the pink color is again produced. Each cubic centimeter of decinormal soda solution represents 0.00068 grams of ammonia. The amount per cent. is obtained by multiplying by ten. The normal degree of urinary acidity fluctuates between 30 and 40 degrees.

New York Medical Journal

August 28

8 The Medical Profession for 6,000 Years. J. J. Walsh, New York.
9 Peritoneal Adhesions. B. Robinson, Chicago.
10 Mind and its Relation to Heredity. C. F. Clowe, Schenectady, N. Y.
11 Tuberculosis of the Knee Joint. I. D. Steinhardt, New York.
12 *Pathology of Pseudohypertrophic Muscular Dystrophy. F. C. Potter, Philadelphia.
13 *Results of Treatment in 172 Cases of Pulmonary Tuberculosis in the Out-Patient Department of the German Hospital. G. L. Rohdenburg, New York.
14 *Blood Pressure in General Paresis. A. Schmiergeld, New York.

12. **Pseudohypertrophic Muscular Dystrophy.**—Potter reports a case which he believes supports the view held by others as well as by himself that there may be transitional forms of dystrophy in which alterations in the nervous system go hand in hand with diseases of the muscles. Pseudohypertrophic muscular dystrophy developed in a boy with no antecedent or family history early in life; and from the age of 9 until the time of his death at 15, he could not walk. At the time of death, resulting from pneumonia, there was inability to use the lower and to a less extent the upper limbs, hypertrophy with fatty infiltration of the calf and thigh muscles, protrusion of the abdomen, atrophy of the chest, shoulder and arm muscles, and a complete loss of reflexes.

Necropsy demonstrated typical changes in the peripheral muscles, smallness and degeneration of the peripheral nerves, diminution in the size and degeneration of the anterior roots with a degeneration and some disease of the cells of the anterior horns, most marked in the ventromesial group and in the cells of Clarke's column, especially of the lumbar cord. Besides there was a marked fatty infiltration in the liver with an hypertrophy, atrophy and fatty infiltration of the heart muscle with a slight fibrosis.

13. **Tuberculosis.**—Of 172 patients under treatment, 16 died, and are not taken into consideration, except in estimating the percentage of results. The cases were not selected, and Rohdenburg says that fully 25 per cent. of those patients now classed as improved will in another 12 months be placed either in the apparently cured or arrested class, if the present rate of progress is kept up. The results obtained in the various stages of the disease are as follows: All stages: Apparently cured, 3 (1.75 per cent.); arrested, 14 (8⅛ per cent.); improved, 65 (37⅝ per cent.); not improved, 74 (43 per cent.); died, 16 (9.05 per cent.). Cases in the first stage, 76: Apparently cured, 3; arrested, 8; improved, 43; not improved, 22. Cases in the second stage, 56: Apparently cured, 0; arrested, 6; improved, 20; not improved, 30. Cases in the third stage, 24: Apparently cured, 0; arrested, 0; improved, 2; not improved, 22.

14. **Blood Pressure in General Paresis.**—Schmiergeld found that the blood pressure in general paresis is very variable. In the majority of cases, however, it seemed to be lower than in normal individuals. There apparently exists no relationship between the mood of the paretic and the arterial tension; elated paretics may have a high pressure and depressed paretics a low one.

Boston Medical and Surgical Journal

August 26

15 Heart Disease in Infancy and Childhood. J. L. Morse, Boston.
16 Differential Diagnosis of Cerebellar Tumors. E. Jones, Toronto.
17 *Work as an Immediate and Ultimate Therapeutic Factor. F. L. Hills, Rutland, Mass.
18 Studies in Psychopathology (continued). B. Sidis, Brookline, Mass.
19 Pregnancy, Uterine Myomata and Peritonitis. J. G. Mumford, and J. B. Hartwell, Boston.

17. **Work as a Therapeutic Factor.**—At the sanatorium at Rutland, a system of work has been in operation for several years. All patients who can exercise without symptoms are expected to work from half an hour to two hours daily. The work allotted to them is the making of beds, care of the wards, wiping the woodwork with damp cloths, carrying trays, serving lunches, picking up about the lawns and walks, running a lawn mower, etc. The lighter work is first given to the patients, and the heavier work, such as carrying trays and running the lawn mower, is given after they have demonstrated their ability to do the light work without reaction. The number of patients at present doing this grade of work is 132, or 38 per cent. of the whole number under treatment.

The ultimate results of exercise seem to be well exemplified by the subsequent history of those patients who worked while in the sanatorium and also played ball on the team, which for several years has been a feature at Rutland. The rather strenuous exercise in which these patients indulged, in addition to their work, afforded a pretty severe test of their physical condition. During the last five years, 27 patients were allowed to play on the ball team. All these men were working four and one-half hours and their exercise was not restricted. They were picked men, selected from the daily average population of 180 men. All had been under observation and sanatorium treatment for several weeks or months and had been worked up to this amount of exercise gradually. The disease was incipient in 12 and moderately advanced in 15.

Their condition on discharge from the sanatorium was as follows: Apparently cured, 3; arrested, 11; improved, 13; average duration of residence, eight months.

The subsequent history of these men showed that 22, or 81.4 per cent., are to-day doing fulltime work, 2 are working part of the time, but have had relapses, and 3 are dead. Of the latter, 2 resumed intemperate habits after leaving the sanatorium, and their early death was directly traceable to dissipation. One had a relapse after returning to work and died of a pulmonary hemorrhage.

The above facts are given, not in advocacy of baseball as a therapeutic agent, but simply to show that, in selected cases, pretty strenuous exercise can be allowed with safety and even with advantage to the patient in hardening him and building up his resistance.

Lancet-Clinic, Cincinnati

August 21

20 Surgical Treatment of Puerperal Eclampsia. M. A. Tate, Cincinnati.
21 Pathology and Diagnosis of Dilatation of the Renal Pelvis. L. W. Bremerman, Chicago.

Kentucky Medical Journal, Bowling Green

August 1

22 *Sanitary Condition and Needs of Kentucky.
23 Acute Gastroenteric Infection in Children. Diagnosis, Complications, Prognosis and Treatment. J. C. McCreary, Cave City.
24 Case of Inverted Uterus. T. J. Bullock, Freedom.
25 Mechanical Therapeutics and its Application in Chronic Diseases. J. T. Green, Leitchfield.
26 Chorea and Conditions Leading to it. W. J. Shacklett, Nolin.
27 Marvelous Advance in Medicine in the Nineteenth Century. J. N. Todd, Fredonia.

August 15

28 Management of Chronic Valvular Heart Lesions in Childhood and Adolescence. J. R. Morrison, Louisville.
29 The Medical Director. D. H. Kellar, Louisville.
30 Angiosarcoma of Kidney. A. M. Vance, Louisville.
31 Cancer of Bladder. A. Schachner, Louisville.
32 *Pseudocyesis. H. E. Tuley, Louisville.
33 Double Suppurative Parotitis Following Salpingo-Oöphorectomy. J. H. Peak, Louisville.

22. Abstract of and comment on this article appears in the Department of Medical Economics, this issue.

32. **Pseudocyesis.**—Tuley reports the case of a woman, aged 54, married 25 years, who never conceived. Her last regular menstruation was in July, 1908. She missed in August, but menstruated on September 15, when due. This period lasted the full five days, but the amount was much less than usual. From this time there was no menstruation until January, 1909, when the flow lasted only part of a day and was very slight. This spotting was repeated in February for a part of a day. Early in October, morning sickness was noted, especially when brushing her teeth, this continuing until early in January. At no time was there vomiting. In January it became necessary to increase the size of her skirt bands, which were uncomfortably tight owing to increase in size. A noticeable tenderness of her breasts and an apparent enlargement were present at this time. Very shortly cravings for unusual articles of food were noticed and commented on by patients and friends. On Feb. 10, 1909, a faint flutter was noticed in the region of the pubes, which was thought to be quickening, but it was very indistinct, and it was not until February 12 that the movements could be felt and confirmed by the patient with the hand on the abdomen. This movement was continuous and often annoying to the patient when awake.

From this time until March 26 the "pregnancy" advanced normally, with gradually increasing enlargement of the abdomen. Tuley then saw the woman. Inspection of the abdomen revealed an enlargement extending midway to the ensiform cartilage, entirely symmetrical, and on palpation the abdomen was soft and no tumor could be felt. By vagina the uterus was found to be practically normal in size and in good position. The enlargement of the abdomen was entirely a gaseous distention of the intestines. Under restricted diet, daily high colon irrigations, saline cathartics once daily and lactic acid bacteria tablets three times a day, the abdominal distention disappeared. The patient returned home in ten days, having entirely recovered.

Medical Fortnightly, St. Louis

August 10

34 The Crusade Against Cancer of the Uterus. A. Samuels, Baltimore.
35 Little Stories of Physician and Patient. A. H. Moodricker, Wabash, Ind.

Journal of Ophthalmology and Oto-Laryngology, Chicago

August

36 Pterygium. M. Iverson, Stoughton, Wis.
37 Interstitial Keratitis Probably Due to Autointoxication. H. B. Williams, Chicago.
38 A New Eye Irrigator. G. G. Lewis, Syracuse, N. Y.
39 Diagnosis of Adenoids in Children and in Adults. H. Hays, New York.
40 A Critique of the So-Called Modified Radical Mastoid Operation. S. J. Kopezky, New York.

Bulletin American Academy of Medicine, Easton, Pa.

August

41 *American Characteristics and Professional Responsibility. H. C. Putnam, Providence, R. I.
42 Functions of the Medical School. E. H. Long, Buffalo.
43 Standards of Medical Education. H. S. Pritchett, New York.
44 A Medical Student in 1867. J. A. Wyeth, New York.
45 The Combined Course. W. H. Carpenter, New York.
46 The Present Status of Medical Education. F. C. Zapffe, Chicago.
47 The Five-Year Medical Course. J. Rogers, New York.

41. Abstracted in THE JOURNAL, July 17, 1909, p. 224.

Journal of Biological Chemistry, Baltimore

August

48 *Spontaneous Oxidation of Cystin and the Action of Iron and Cyanids on It. A. P. Mathews, and S. Walker, Chicago.
49 Action of Metals and Strong Salt Solutions on the Spontaneous Oxidation of Cystein. A. P. Mathews and S. Walker, Chicago.
50 *Nature of the Chemical Mechanism which Maintains the Neutrality of the Tissues and Tissue Fluids. T. B. Robertson, Berkeley, Cal.
51 *Uricolysis, with Particular Reference to the Pathogenesis of "Uric-Acid Infarcts" in the Kidney of the New-Born. H. G. Wells, and H. J. Corper, Chicago.
52 Protein Metabolism in Cystinuria. H. B. Williams, and C. G. L. Wolf, New York.
53 Indirect Colorimetric Determination of Phosphorus with Uranium Acetate and Potassium Ferrocyanid. R. B. Gibson and C. Estes, Columbia, Mo.
54 Effect of Shaking on the Activity of Ptyalin. M. M. Harlow, and P. G. Stiles, Boston.
55 Estimation of Total Sulphur in Urine. S. R. Benedict, Syracuse, N. Y.

48. **Action of Iron and Cyanids on Oxidation.**—Mathews and Walker conclude their work on the oxidation of cystein with the following summary: The spontaneous oxidation of cystein to cystin is enormously accelerated by a very small amount of iron. In $\frac{M}{100{,}000}$ solution the oxidation is doubled. The acceleration involves a temporary union of the oxidized iron with cystein, forming a violet compound. The combination is probably with the sulphur of the cystein. The oxidation is accelerated also by gold, platinum, copper and mercury among the metals; and by arsenic among the metalloids. It is strongly retarded by lead, nickel, cobalt, uranium, thorium, zinc and cadmium. Cobalt inhibits more than nickel. These salts inhibit the accelerating action of the iron. The oxidation is not affected by medium amounts of manganese, barium, calcium, sodium or potassium salts. It is greatly reduced by concentrated barium chlorid solutions and by 4 molecular solutions of sodium, potassium and calcium chlorid solutions. In the particulars just noted, the spontaneous oxidation of cystein shows many interesting parallelisms to the oxidations of the cells.

50. **Neutrality of Tissues.**—According to Robertson's view, the proteins play a prominent rôle in the preservation of the neutral reaction of animal organs and fluids, since they are capable of absorbing a large amount of acid without materially affecting their reaction. The readiness with which the proteins combine with alkalies, expelling carbon dioxid from the bicarbonates, may explain the escape of carbon dioxid from the blood during respiration. The opinion of Henderson that "the importance of the proteins, through their alkali compounds, in the preservation of neutrality in true solution is surely secondary," is not justified, according to Robertson, by the facts described in his paper.

51. **Uricolysis and Uric-Acid Infarcts.**—The results of the work of Wells and Corper indicate that the human organism has power to form uric acid from other purins, but possesses no uricolytic power so that it can not destroy the acid once formed. The absence of uricolytic enzymes is demonstrated not only in the human fetus, but also in the organs of adults. The experiments of Schittenhelm indicated that the liver, kidney and muscle of the fetus were actively uricolytic, but Wells and Corper found the opposite to be the case. The uric-acid deposits in the kidneys of infants can not be explained by a tardy development of a uricolytic enzyme, but are probably due to the high proportion of uric acid in the urine of infants together with local conditons in the kidney which favor its deposition.

Journal Oklahoma State Medical Association, Muskogee

August

56 Diagnosis and Treatment of Malaria in Different Localities. F. B. Erwin, Wellston.

57 Abdominal Myomectomy for Large Uterine Fibroids. W. J. Frick and H. P. Kuhn, Muskogee.
58 Use and Abuse of the Curette. T. J. Dodson, Mangum.

Annals of Surgery, Philadelphia

August

59 *Jejunal and Gastrojejunal Ulcer Following Gastrojejunostomy. H. J. Paterson, London, Eng.
60 *Surgical Procedures Designed for the Relief of Pulmonary Tuberculosis. C. A. Powers, Denver, Colo.
61 Pistol-Shot Wound of the Axillary Artery. F. W. Murray, New York.
62 *Treatment of Diffuse Septic Peritonitis. R. G. LeConte, Philadelphia.
63 Volvulus of Giant Sigmoid Colon. W. B. Coley, and I. S. Chaffee, Sharon, Conn.
64 *Large Sliding Hernias of the Sigmoid. L. W. Hotchkiss, New York.
65 The Fat Appendix. H. A. Kelly, Baltimore.

59. **Jejunal Ulcer.**—One of the two cases reported by Paterson is of interest because it is the first case in which an attempt has been made to obtain an accurate analysis of the gastric contents, and of the fluid escaping from the jejunal fistula before and after operation for ulcer of the jejunum. The operation was an anterior gastrojejunostomy for pyloric stenosis with perforation of a jejunal ulcer five years later; resection of the affected portion of the jejunum, and anterior gastrojejunostomy "en-Y" ("Roux operation"). The patient recovered. Paterson also cites briefly 61 other cases recorded in the literature, a study of which shows that the risk of jejunal ulcer following gastrojejunostomy is probably under 2 per cent.

Clinically, there are two groups of cases: (1) Those in which perforation into the general peritoneal cavity ensues; (2) those in which general peritonitis is prevented by the formation of adhesions. Pathologically, the cases may be classified as follows: (1) Ulcers of the jejunum; (2) gastrojejunal ulcers, or ulcers at the site of the anastomosis.

Jejunal ulcers in some instances are of infective origin. In these cases ulceration commences within a very short interval after gastrojejunostomy, and usually the ulcers are multiple. In a large proportion of cases the ulcer is single, and is probably the result of the toxic action of hydrochloric acid, which injures the cells of the mucous membrane so that they are digested by the intestinal juice. Possibly other agents than hydrochloric acid may play a part in injuring the mucous membrane. Gastrojejunal ulcers are a direct consequence of the wound made in effecting the anastomosis, and their persistence is probably the result of hyperacidity of the gastric juice. Closure of a gastrojejunostomy opening is the consequence of cicatrization of a gastrojejunal ulcer. It is more likely to occur when the pylorus is patent, not because of the patency of the pylorus, but because in such cases hyperacidity is usually markedly present.

Any procedure or disease which diminishes the amount of bile and pancreatic juice in the jejunum favors the occurrence of jejunal and gastrojejunal ulcer. For this reason operations of the "Y" type and enteroanastomosis are inadvisable, at any rate in cases in which free hydrochloric acid is present in the gastric contents, as after these procedures the anastomosis and a portion of the jejunum are deprived of the protective influence of the alkaline bile and pancreatic juice. As no instance of ulcer after the posterior no-loop operation has yet been recorded, it must be assumed that its occurrence after this type of operation is less likely. It is possible, however, that this immunity is partly the result of improvements in technic, and in the after-treatment of gastric operations in general. In cases in which perforation into the general peritoneal cavity occurs, immediate laparotomy offers the only chance of saving the patient's life.

Inasmuch as there is some evidence that jejunal gastrojejunal ulcers may heal, an operation should not be performed in the chronic cases until after a thorough trial of medical treatment. Even when surgical intervention is necessary, an attempt should first be made to diminish hyperacidity, if this be present. The aim should be to prevent the occurrence of this complication of gastrojejunostomy. Preventive treatment consists in (1) careful and appropriate surgical technic, and (2) prolonged after-treatment. Paterson is of the opinion that every case of recrudescent pain of a constant character after gastrojejunostomy, especially when associated with hyperacidity of hypersecretion, should be regarded as a case of potential ulcer and treated accordingly.

60. **Surgical Procedures for Tuberculosis.**—Pneumotomy with drainage of a tuberculous cavity was employed twice by Powers, in each case draining a cavity in a lower pulmonary lobe. In the first instance, a man, aged 42 years, suffered from a fairly large cavity in the left lower lobe. Costal resection was done and the pleuræ were found adherent; the lung was incised and the cavity entered at a depth of about 1½ inches; drainage. Improvement was but temporary, a sinus persisted and the patient succumbed to tuberculosis in a few months.

In the second case, a woman of 27 gave a history of pulmonary tuberculosis of six months' duration; she had lost in flesh and strength and had a purulent expectoration of 6 ounces daily. She was supposed to have an encapsulated empyema just below and within the angle of the right scapula. Costal resection showed that the pleuræ were adherent. Pleural separation discovered no pus. A needle thrust into the lung withdrew pus. An incision was made and a moderate cavity was entered at a depth of about one inch. Trabeculæ were broken down, gentle curettage was made; drainage was instituted. Bacteriologic investigation showed a mixed infection. This patient underwent a fairly speedy improvement. At the time of last report, one year after operation, the woman had gained materially in flesh and strength; expectoration was practically *nil*. A discharging sinus persisted.

62. **Treatment of Diffuse Septic Peritonitis.**—In three cases reported by Le Conte the essentials of the Murphy treatment were practiced: namely, a speedy operation; removal of the cause with the least possible traumatism to the peritoneal surface; no douching of the peritoneal cavity; the exaggerated Fowler position; and continuous enteroclysis by the drop method. In six other cases the peritoneal cavity was flushed with warm saline solution. The head of the bed was but slightly raised, the patients lying on the back or being turned on the right side, and salt solution was given by rectum—six fluid ounces every fourth hour.

In this series of nine cases there was but one death, which occurred on the fourteenth day after operation, probably from secondary infection of the liver, plus secondary hemorrhage. A postmortem examination was not allowed. In all instances the patients arrived in the hospital in such serious condition that they were at once transferred from the receiving ward into the operating room.

64. **Sliding Hernia of Sigmoid.**—In Hotchkiss' case the sac was large and reached well down into the scrotum. It contained omentum and small and large intestine. All the contents were easily reducible, through the wide internal ring, save a long piece of the sigmoid colon which was adherent by a short mesocolon to the posterior wall of the sac, to the extent of about four inches. Under these conditions it was, of course, impossible to close off the neck of the sac by any of the usual means of ligation or suture. The mesosigmoid being short, could not be tied off so as to permit the reduction of the gut without danger of causing necrosis. In order to overcome this difficulty, Hotchkiss constructed an elongated mesocolon from the tissues of the hernial sac wall in such a manner as to permit of the easy and perfect reduction of the gut into the abdominal cavity, and not to interfere with the suture of the internal opening of the sac. The steps of the operation are as follows:

Having freed the sac from the cord to its full extent, the sac is opened anteriorly and its reducible contents replaced within the abdomen, and held there by a gauze pad. The incision in the sac is then prolonged upward to the internal ring and downward nearly to the lowermost point of attachment of the mesosigmoid on its posterior wall, which permits easy eversion of the sac wall. Grasping the adherent sigmoid and pulling it gently forward, it will be found that the peritoneum of the split hernial sac will become everted in such a manner as easily to form a new and elongated mesentery for the sigmoid, with its smooth peritoneal surfaces turned outward to form its free surface, and its outer or non-peritoneal surfaces falling in contact. Suturing the edges of this new mesentery together permits its enlongation to an extent sufficient to

allow the perfect reduction of the sigmoid into the abdominal cavity. When this step has been accomplished the somewhat irregular-shaped opening into the abdominal cavity may be sutured tightly by a purse-string suture introduced from within, or by any other form of suture which seems best to meet the case.

Therapeutic Gazette, Detroit

July

66 Operative Treatment of Papilledema Dependent on Increased Intracranial Tension. G. E. de Schweinitz, and T. B. Holloway, Philadelphia.
67 Prognosis and Treatment of Certain Prostatic Diseases. F. W. Robbins, Detroit.
68 Relation of the Eye to General Disease. L. F. Appleton, Philadelphia.

August

69 Selection of Cases and the Limitations of Specific Treatment in Tuberculosis. K. von Ruck, Asheville, N. C.
70 Treatment of Facial Neuralgia with Injections of Alcohol Loco Dolenti. A. Gordon, Philadelphia.
71 Stypticin in Uterine Hemorrhage. H. I. Berger, Indianapolis.
72 Nutrition in its Application to Health. R. S. Tyrrell, Toronto.

American Medicine, New York

July

73 Abstracts of Medical Articles. H. Stern, New York.
74 Coordinance of Laboratory Work and Inspection in Supervising the Milk Supply. W. R. Stokes and T. M. Wright, Baltimore.
75 Psychology of the Tobacco Habit. J. L. Tracy, Toledo, Ohio.
76 Problem of Race Suicide: Problem Rather of National Hygiene and Prophylaxis than Political Economy. E. H. F. Pirkner, New York.
77 Dispensaries. F. D. Lewis, Buffalo.
78 Action of Glandular Extracts on Diuresis. I. Ott, and J. C. Scott, Philadelphia.

Journal Missouri State Medical Association, St. Louis

August

79 *Diagnostic Value of the Systolic Murmur at the Apex of the Heart. F. W. Froehling, Kansas City.
80 Prevention of Ophthalmia Neonatorum. P. I. Leonard, St. Joseph.
81 The New Standard of Diet. I. J. Wolf, Kansas City.
82 *Fractures: Problems and Possibilities of a Country Practitioner from a Surgical Standpoint. T. F. Lockwood, Butler.
83 The Missouri State Medical Association: What it should Mean to a Missouri Doctor. T. Brown, Hamilton.
84 The Missouri State Medical Association: What it should Mean to the State at Large. E. C. Grim, Kirksville.
85 Prosecution of Irregulars: From Experience of a County Secretary. M. A. Smith, Gallatin.
86 The Secretary's Work: From a Business Standpoint. E. N. Chastain, Butler.
87 What the County Secretary can do to make the State Journal a Forceful Element in Medical Organization. E. J. Goodwin, St. Louis.

79. **Systolic Murmur.**—Froehling warns against basing a diagnosis of heart disease on the presence of a systolic murmur at the apex. The totality of the symptoms, with the history of the case, must also be taken into consideration.

82. **Fractures.**—Lockwood details cases of fracture of the skull, and describes at length his treatment, including the use of splints especially devised by him for Colles' fracture, Pott's fracture and fracture of the femur. It is the purpose of the paper to show that equally good results can be obtained in the country from the proper treatment of these cases as in the cities.

Journal of Advanced Therapeutics, New York

August

88 The General Practitioner his own Radiographer. E. G. Edwards, La Junta, Colo.
89 The Static Brush Discharge. F. De Kraft, New York.
90 Static Electricity. E. G. Wilkinson.
91 Alto-frequent Cytolysis of Cancer (continued). J. A. Riviere, Paris, France.

Texas State Journal of Medicine, Fort Worth

August

92 *Appendicostomy, with Review of Literature and Report of Cases. W. B. Russ, San Antonio.
93 Gynecologic Progress. H. M. Doolittle, Dallas.
94 The Diathesis. G. H. Moody, San Antonio.
95 The Clinical Laboratory for the Internist; its Essentials for Equipment; its Uses; its Abuses. O. I. Halbert, Waco.
96 Syphilis as a Cause of General Paresis. W. L. Allison, Fort Worth.
97 Organization of the Texas Antituberculosis Association. W. N. Brumby, Austin.
98 Tumors of Orbit. E. H. Cary, Dallas.
99 Obscure Causes of Fever Occurring in Infancy and Early Childhood. W. W. Butterworth, New Orleans, La.

92. **Appendicostomy.**—Russ publishes a rather complete review of the literature on this subject, and reports four cases seen by him in which he resorted to appendicostomy. These comprised two cases of amebic dysentery and one each of anemia and mucous colitis. The results obtained were very encouraging. He also describes the technic of the operation and its indications.

New York State Journal of Medicine, New York

August

100 The Physician's Demands of the Pharmacist. W. A. Bastedo, New York.
101 *The Sufficiency of Standard Remedies for Therapeutic Needs. R. A. Hatcher, New York.
102 The Pharmacist's Ability to Meet the Physician's Demands. H. C. Diekman, New York.
103 The Relations of the Physician and the Pharmacist. W. C. Anderson, Brooklyn.
104 *Reform in Proprietary Medicines. W. D. Alsever, Syracuse, N. Y.
105 The Expert in Psychiatry on the Witness Stand, and Certain Causes of Insanity. H. E. Schmid, White Plains, N. Y.
106 Acute and Chronic Nephritis in the Young. A. A. Gillette, Rome.
107 Essentials in the Diagnosis of Diseases in Children. New Rochelle.
108 Fracture of the Skull. H. C. Rooth, Buffalo.

101. **Sufficiency of Standard Remedies.**—Standard remedies are those which measure up to the requirements approved by well-informed members of the profession. The Pharmacopeia is the highest standard for therapeutic agents. The large number of official substances—far exceeding the capacity of any man to know thoroughly and to use with skill—is presented under a great variety of forms to suit the most varied conditions. But the crucial question is to what extent does it include that which is really valuable in therapeutics. Many would be sadly handicapped by the loss of all unofficial remedies, but Hatcher believes the true explanation of this lies in the fact that we have permitted the proprietary interests to train us in the use of their products, until we have come to depend on them instead of familiarizing ourselves with official substances, and learning the possibilities afforded by the intelligent use of them. This crucial question can be answered correctly only when we have determined how many of the unofficial substances are indispensable even to one who is well acquainted with those which are official and is able to use them properly.

The stock argument of those who cling to the use of proprietary preparations and ready-made mixtures is that phenacetin and antifebrin were indispensable long before they became official. To cite these in support of the argument of the insufficiency of standard remedies is a confession of ignorance. They are the result of careful scientific investigations, the highest aim of therapeutics, but it is, indeed, a far cry from phenacetin to antikamnia. Every proprietary remedy is in the experimental stage, and physicians owe it to themselves and to their patients to disregard the literature gratuitously supplied by the manufacturers. Commercial men are not philanthropists; they are optimists and use the bright lexicon of youth which lacks a certain word with which their followers become all too familiar. Even in Germany, there are signs of awakening from the apathetic attitude toward this question, and protests are being made against the flood of fraudulent nostrums.

We do not need more new remedies which will save us the trouble of thinking, says Hatcher. The most urgent need in therapeutics to-day is the careful study of the best standard remedies which we now possess, for that man is recreant to his trust who accepts a fee from his patient and then trifles with that patient's health, while experimenting with secret remedies or those of which he knows little, and that little, often the mere statement of an irresponsible detail man who is hired to talk about that which he does not understand.

104. **Reform in Proprietary Medicines.**—Alsever says that many good men tell us that if we will confine our prescribing to U. S. P. and N. F. preparations we can accomplish more and have as elegant preparations as though we used proprietaries. The book entitled "New and Nonofficial Remedies," which contains descriptions of the remedies which have been accepted by the Council on Pharmacy and Chemistry of the A. M. A., gives reliable information regarding the remedies which since the last revision of the Pharmacopeia have seemed

to be of value. If we will confine ourselves to the drugs and preparations described in these three books we can not go far wrong. If we will decline to discuss with detail men remedies which do not bear a printed statement of their composition, and if we decline to use others unless they have been submitted to the Council for acceptance, we will not only keep our own skirts clear, but will also influence manufacturers to market only ethical goods. It is probably useless for a general practitioner to attempt to "try out" a new remedy. His observations will be so few and they will be made on people with such varying physical defects and modes of life that they will be valueless. If we can by individual and united efforts influence the medical, the religious and the daily papers to refuse medical advertisements which contain untruthful or grossly exaggerated statements, we will have accomplished a great good. It is our duty to the public to limit the use of secret remedies as much as possible.

110. **Wassermann and Noguchi Complement Fixation Test.**—Fox claims that of the different methods of serodiagnosis of syphilis depending on the principle of complement-fixation, that of Noguchi seems most perfect from a theoretic standpoint, and from the standpoint of simplicity in technic it stands without a rival. Fox states that his comparative analysis of the Wassermann and Noguchi tests shows, in cases of syphilis, a larger proportion of positive reactions with the Noguchi than with the Wassermann test.

Journal of Cutaneous Diseases, New York

August

109 Progress in Dermatology. T. C. Gilchrist, Baltimore.
110 Comparison of the Wassermann and Noguchi Complement-Fixation Tests. H. Fox, New York.

Montreal Medical Journal

August

111 Obstetric Nursing. H. M. Little, Montreal.
112 Psychoanalysis in Psychotherapy. E. Jones, Toronto.
113 The Divided Responsibility in Regard to Public Health. C. A. Hodgetts, Toronto.
114 *Ulcerative Stomatitis Associated with Vincent's Bacillus. H. B. Cushing, Montreal.
115 *Diphtheria of Intestines. R. E. McKechnie, Vancouver.
116 Further Indications for Cesarean Section. A. L. Smith, Montreal.
117 Gas-Air Anesthesia in Major Surgery. E. Archibald, Montreal.
118 Pirates of Medicine. J. McCrae.

114. **Ulcerative Stomatitis.**—Cushing reports cases to illustrate the association of a mildly contagious form of ulcerative stomatitis with the presence of Vincent's bacillus, i. e., with the symbiosis of *Bacillus fusiformis* and *Spirochæta dentium*. They occurred in institutions, in children from 3 to 8 years of age, all of whom suffered from malnutrition or ill-health, and there seemed to be a mild infectiousness about the disorder. The disease began as a small superficial ulcer at the margin of the gums and afterward extended in some cases in the form of an adherent false membrane or superficial necrosis to the mucous membrane of the cheek, the tongue or the fauces; there was a characteristic fetid odor, mild constitutional disturbance and enlargement of the neighboring lymph glands. Smears from the lesions showed the characteristic organisms in great numbers. All recovered in from one to three weeks. Potassium chlorate given internally seemed to hasten the recovery.

115. **Diphtheria of Intestines.**—McKechnie records an unusual case of dysentery. The patient was a girl, 6 years old, born in Fiji. The parents were on their way home to Germany, taking the child with them. Shortly before leaving Suva, the child was taken ill with what seemed a mild dysentery, and the condition persisted throughout the trip of two and a half weeks. On arrival at Vancouver, the child was emaciated and very much exhausted. The dysentery was fairly well held in check by the treatment the patient received on ship board, but she was having several small stools daily, stained with blood and consisting of mucus and pus. Some of the motions were of pure mucus—about half a pint at a time. Enormous quantities of streptococci were found in the stools. These rapidly disappeared under treatment with streptolytic serum, but the symptoms did not abate. Finally, cultures showed bacilli of the diphtheritic type. At once antidiphtheritic serum was used, with immediate improvement of the symptoms, and two days later a complete cylindrical cast of the bowel, about four inches in length, was passed. The child made a slow but uninterrupted recovery after this. The cast was examined microscopically, and proved to be a true diphtheritic membrane. It was noted that the patellar reflexes were absent. Later the patient developed paralysis of the anus, so that for a couple of weeks the bowels moved involuntarily.

Kansas City Medical Index-Lancet

August

119 Open Operation and the Internal Splint in the Treatment of Fractures. H. E. Pearse, Kansas City.
120 Causes and Prevention of Nervous Diseases. J. Punton, Kansas City.
121 Intrauterine Treatment. H. C. Crowell, Kansas City.
122 Treatment of Hay Fever. C. W. Gosney, Kansas City.
123 Treatment of Syphilis. N. O. Lewis, Kansas City.

Albany Medical Annals

August

124 *The Insanity Defense for Crime. J. B. Chapin, Philadelphia.
125 Selection of a Site for the Albany Tuberculosis Hospital. A. T. Laird, Albany.
126 Field of the Albany Red Cross in the Fight Against Tuberculosis. H. Van Rensselaer, Albany.
127 Review of Recent Work on the Pancreas. W. Tileston, Boston.

124. **The Insanity Defense for Crime.**—The prominent points presented by Chapin were suggested by participation as a witness or spectator in court, or by perusal of public reports. The important or dominating thoughts may be condensed as follows: He says that from common observation and experience, we recognize the fact that indulgence in passions may result in a loss of self-control and gradual degeneration which is acquired and not due necessarily to disease, inheritance or environment. If this is true of individuals, it is equally true that whole communities and even nations may degenerate to a low state or be destroyed from a lax administration of justice. Human and divine laws are intended to secure the preservation of social order and the betterment of a community. On their execution depends the security of human life. If self-preservation is a maximum or principle which may be a sufficient defense of the individual, in a larger sense self-preservation may be a warrant for a community to adopt extraordinary measures for its protection as well as for the prevention of crime. If persons actually insane have been convicted of capital crimes, which Chapin believes has been of rare occurrence, it has more frequently happened that crime committed in an exacerbation of some one of the human passions has been condoned mainly through a doubt of the sanity of the criminal, created by the evidence of medical witnesses who would not have felt warranted in signing a certificate of insanity for detention in a hospital, as no single symptom had been presented that antedated the criminal act.

In the opinion of some, the trial judges have freely opened the way to the introduction of extraneous issues; have permitted the introduction of highly technical questions, the use of scientific terms that do not imply necessarily advances in psychiatric knowledge, nor are universally accepted. It is admitted the names are new discoveries, unfamiliar, beyond the comprehension of the court and jury, in themselves having no significance, yet they have a mysterious influence, and work the court into a state of doubt or scientific indigestion. Chapin believes that insufficient attempts are made to differentiate the operation of the uncontrolled human passions from what we ordinarily understand to be the disease or condition we call insanity. Some amendment or change in the present practice of introducing the medical witness on the stand without bias or the suspicion of it would be welcomed, but it might be regarded as a gratuitous offer for a medical man to make suggestions about legal procedures that belong properly to the courts. The penologist must study whether it is possible that any modification of the penalties for crime can be made that would more justly recognize degrees of criminality.

Memphis Medical Monthly

July

128 The Narcotic Drug Addictions; Etiologic Factors; Principles Involved in Treatment; Reasons for Past Failures. G. E. Pettey, Memphis.
129 Fibroma of the Nasopharynx. R. H. T. Mann, Texarkana.

130 Mydriatics and Their Use in Eye Practice. J. W. Price, Memphis.
131 Chronic Appendicitis as a Cause of Dysmenorrhea. O. S. McCown, Memphis.
132 Diagnosis and Treatment of Acute Diseases of the Respiratory Tract in Infancy and Early Childhood. W. C. Campbell, Memphis.

University of Pennsylvania Medical Bulletin, Philadelphia

August

133 Opening of the New Medical Amphitheatre and Clinical Laboratory of the Hospital of the University of Pennsylvania. G. Dock, Ann Arbor.
134 *Active Bacterial Immunization in Animal Experimentation. B. A. Thomas, Philadelphia.
135 *The Typhoid Cutaneous Reaction. S. J. Deehan, Philadelphia.
136 A Rare Anomaly of the Kidney. G. Fetterolf, Philadelphia.
137 The Chemical Composition and Chemical Properties of Fluid Derived from a Pancreatic Fistula. J. B. Nutt, Philadelphia.

134. **Active Bacterial Immunization.**—Thomas found by experimentation that bacterial immunization can be established in rabbits by inoculations of various bacterines. The immunity endures for a period, the duration of which is, as yet, undetermined, but then declines. The duration and degree of bacterial immunization by some bacterines or bacterial suspensions is more lasting than by others, notably, in this series, that by the suspension of the tubercle bacilli, although absolutely properly sized and spaced inoculations might nullify these differences. In the presence of a severe intercurrent infection, the opsonic content of the blood is markedly diminished.

135. **Typhoid Cutaneous Reaction.**—The typhoid cutaneous reaction is a simple test which can be applied by the physician at the bedside. It is free from danger, and, is, therefore, far superior to the ocular reaction. It yields a positive reaction in from fifteen to twenty hours, or less, without giving rise to any discomfort or annoyance to the patient. The reaction gave positive results in every case of typhoid fever in which it was tried by Deehan, and negative results in diseases other than typhoid fever.

Monthly Cyclopedia and Medical Bulletin, Philadelphia

July

138 Variations in the Medicinal Therapy of Pneumonia in the Last Half Century. A. Jacobi, New York.
139 Progress and Changes in the Treatment of Tuberculosis During the Past Twenty Years. E. R. Baldwin, Saranac Lake, N. Y.
140 Standardization of Materia Medica Products. F. R. Stewart, Philadelphia.
141 Pneumonia: Its Danger Point and How to Avoid it, According to Dr. Sajous. J. M. Taylor, Philadelphia.
142 Sciatica. J. V. Shoemaker, Philadelphia.
143 A Question in Therapeutics. B. Horne, Gas City, Ind.
144 Intestinal Obstruction Complicating Advanced Pregnancy: Operation; Recovery. J. A. McGlinn, Philadelphia.
145 The Effect of Tasteless Cold-Storage Chicken used as Food. E. Cutter, West Falmouth, Mass.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal, London

August 14

1 *Double-Filigree Operation for the Radical Cure of Inguinal Hernia. L. McGavin.
2 Acute Necrosis of the Skin. C. Coombs.
3 Congenital Malformations of Palate, Face, and Neck. A. Keith.
4 Prognosis in Tetanus. J. Paton.
5 *Sterilization of the Skin of Operation Areas. J. L. Stretton.
6 Account of the Officer's Training Corps, with Special Reference to its Medical Branch. H. E. R. James.
7 Physical Training of Recruits in the Army. R. Porter.
8 Contrast between Treatment of the Wounded under the Moghul Emperors and King Edward VII, Emperor of India. T. H. Hendley.
9 Diagnosis of Syphilis by Laboratory Methods. P. W. B. Smith.
10 Arylarsonate Treatment of Syphilis. F. J. Lambkin.
11 Arsenical Compounds in Treatment of Syphilis. H. C. French.
12 Beneficial Results of Recent Sanitary Work in Malta. G. S. Crawford.
13 Permanent Attachment of Transport to Field Medical Units. P. B. Giles.
14 A British Man-of-War at Messina. F. F. Mahon.
15 Existing Ambulance Organization of the Home Railway Companies. J. M. Carvell.
16 Rhinology as an Aid to Diagnosis of Pulmonary Tuberculosis. W. C. Rivers.
17 Detailed Scheme for an Unexpected Landing Party Using Material Available on Board Ship. J. G. Wallis.
18 Fractures Occurring During Epileptic Fits. S. J. O. Dickins.
19 Christchurch Hospital, New Zealand. P. C. Fenwick.

1. **Double Filigree Operation.**—This method consists in strengthening the walls of the inguinal canal by the implantation of two filigrees of silver wire in the tissues in such a way that subsequent stretching or bulging is rendered impossible, and the necessity of a truss is entirely done away with. The filigrees are made in two sections—a pubic and an iliac section. The former is always made of the following dimensions: At the narrow end its width is ¾ inch; at the wide end, 1½ inches, this being the usual length of the adult inguinal canal. Being constructed on the principle that every filigree, whether abdominal or inguinal, should be made with not fewer than eight loops to every inch of its midrib, this will give thirteen loops on either side of the pubic section of an inguinal filigree. The iliac section is made in such a way that its inner third corresponds in shape and size to the outer two-thirds of the pubic section. Its outer end must meet the requirements of the case, being trapezoid, square, or what is more usual, oblong, and of a total length of from 2½ to 3 inches, as may be found necessary. The wire must be unalloyed silver. These filigrees are so placed that the cord comes to be sandwiched, as it were, between two layers of filigree in the canal, the natural relations of which are hardly altered; and further, that the area external to the internal abdominal ring is fortified by a filigree of any size which may be deemed necessary.

5. **Sterilization of Skin.**—Stretton employs a modification of the method of skin sterilization with iodin, as used by Dr. A. Grossich of Fiume. He paints a wide area of the surface to be operated on with a 1 to 3 alcoholic iodin solution previous to the administration of the anesthetic. It is painted on very freely, especially over hairy parts, and allowed to soak in. It is again painted immediately preceding the operation. After the stitches are inserted they are painted over for a margin of an inch all round. The first and only dressing is usually made on the eighth day; the stitches are then removed, and the line of incision, with a margin of 1 inch, is painted with the iodin solution. If for any reason the wound requires to be inspected at an earlier date, it is painted as above described. No previous preparation of any kind is undertaken—no bath, no scrubbing and no shaving. The latter is an important point, because it saves the patient a good deal of after-discomfort. This is at variance with Grossich's method, and combined with the weaker solution of iodin constitutes the difference.

Lancet, London

August 14

20 *Malformations of the Heart. A. Keith.
21 *Preparation and Keeping Properties of Antityphoid Vaccines. D. Semple and H. S. Matson.
22 *Congenital, Hereditary, and Family Hematuria. J. Aitken.
23 The Genesis of the Modern Infirmary. F. S. Toogood.
24 Acute Pancreatitis with Fat Necrosis. F. W. Goyder.
25 Purpura Hemorrhagica Following the Use of Fibrolysin. S. C. Prichard.
26 Tetanus Treated with Antitoxin. R. C. Pitt.

20. **Malformations of the Heart.**—In this paper Keith discusses transposition of the arterial stems; reversion of the heart; imperfect separation of aorta and pulmonary artery; patent ductus arteriosus; malformation of the semilunar valves; imperfect formation of septa; the foramen primum; and patent foramen ovale.

21. **Antityphoid Vaccines.**—Semple and Matson found that the sterilization of antityphoid vaccine can be accomplished efficiently by the addition of 0.5 per cent. carbolic acid. Heating a vaccine in order to sterilize it introduces a harmful and unnecessary element which acts in two ways: (1) It diminishes its immunizing properties, and (2) it curtails its keeping properties. In the experiments recorded the deleterious effects of heat are clearly shown. Antityphoid vaccine sterilized by the addition of 0.5 per cent. carbolic acid retains its immunizing properties unimpaired for two years at least. This is proved (1) by the fact that animals and men treated with a two-year-old vaccine prepared by this method showed the same blood changes as did those treated with a fresh vaccine similarly prepared; and (2) by the fact that animals treated with a two-year-old vaccine prepared by this method withstand the same amount of a virulent typhoid culture when given intra-

peritoneally as do those treated with a fresh vaccine similarly prepared. Animals inoculated with antityphoid vaccine sterilized by the addition of 0.5 per cent. carbolic acid attain a higher degree of immunity than similar animals inoculated with a vaccine sterilized by heat (60 C. for 20 minutes or 53 C. for one hour) and the subsequent addition of an antiseptic. An antityphoid vaccine sterilized by heating for 20 minutes at a temperature of 60 C., and the subsequent addition of 0.5 per cent. carbolic acid has considerably deteriorated after being kept for two years.

22. **Family Hematuria.**—The seven cases reported by Aitkin are of one family which has been under his observation during the past seven years. So far as the history goes, the family is comprised in all of 17 persons, of whom 10 have suffered from hematuria. Testimony is conflicting as to whether the great-grandmother had hematuria or not. She died at an advanced age from "senile decay" with dropsy. The great-grandfather was healthy. Their only child, a daughter, had hematuria (according to relatives), married and had eight children (seven sons and one daughter), and died aged 38 years from Addison's disease. Four of her sons died in infancy from an unknown cause; and one, aged 14 years, from an indefinite "brain trouble." There is no evidence of any of those having suffered from hematuria. The remaining three are alive. The eldest son, aged 31 years, has not had hematuria, but his six children have all been hematuric; the second son, aged 28 years, has suffered from hematuria, and his only child, aged 2 years, is also hematuric; and the daughter, aged 23, unmarried, is also hematuric. There is no history of hemophilia, nor is there any rheumatic tendency in the family. It is interesting to note that in this family the hematuria has been inherited, first, through the female side, and then on two occasions through the male side, in one case the transmitting male not being affected.

Clinical Journal, London

July 21

27 Obstruction of the Large Intestine. A. A. Bowlby.
28 *Mitral Stenosis in Childhood. F. J. Poynton.
29 Treatment of Neurasthenia and the Relation of this Disease to Exophthalmic Goiter. T. D. Savill.

July 28

30 Family Jaundice. R. Hutchinson.
31 *Relationship Between Exophthalmic Goiter and Diabetes. G. R. Murray.

August 4

32 Rheumatoid Arthritis. W. P. Herringham.
33 *Popliteal Aneurism. H. M. Rigby.
34 Diseases of the Thyroid Gland. A. T. Davies.

28. **Mitral Stenosis in Childhood.**—The treatment of mitral stenosis in childhood is mainly the treatment of rheumatism. Warn the parents of the meaning of sore throats, fleeting pains, nervousness and chorea, feverishness and pallor. If possible get such children taken from damp, low-lying houses, and see that they are properly clothed and their extremities protected. Large unhealthy tonsils should be enucleated. Spring and autumn and particularly sudden damp cold after much heat, should be a signal for added watchfulness. Early symptoms should be promptly treated by rest and warmth, and the use of salicylate of soda.

31. **Exophthalmic Goiter and Diabetes.**—Murray's attention was drawn to the relationship between the thyroid gland and the pancreas by a group of four cases which came under his observation, in which exophthalmic goiter was accompanied or succeeded by a severe form of diabetes. One patient recovered from a typical attack of exophthalmic goiter, which was, however, followed by a severe form of pancreatic diabetes, to which she succumbed. The disappearance of the exophthalmic goiter was evidently due to the return of the thyroid to a normal condition, and is an interesting example of how complete this recovery of the gland may be. The diabetes was the result of the destruction of the islands of Langerhans. When a second patient first came under observation she was suffering from exophthalmic goiter without glucosuria, whereas three years later she had practically recovered from exophthalmic goiter, but was suffering from a severe form of diabetes. A third patient with exophthalmic goiter who apparently recovered relapsed on taking thyroid tablets, the second attack persisting and becoming complicated by the development of composite diabetes. The fourth case illustrates the development of diabetes nearly eleven years after the onset of exophthalmic goiter. In all these cases, one patient being a man and three women, severe diabetes developed at a variable interval after the disease had either subsided or decreasd considerably by the time the diabetes had declared itself.

33. **Popliteal Aneurism.**—Rigby reports two patients operated on by the obliterative method in which the results were all that could be desired.

Journal of Tropical Medicine and Hygiene, London

July 15

35 *Piroplasma Bigeminum*. A. R. Wellington.
36 Fasciolidæ in the Pancreas. R. B. Low.
37 *Cholera. R. W. Burkitt.

37. **Cholera.**—Elsewhere Burkitt emphasizes the great value of a large injection of morphin in cholera immediately the disease is suspected. He now reports a number of cases of bad collapses in all of which from 2 to 10 pints of saline solution were infused intravenously. The pulse instead of being quite impalpable, became full, strong and quiet, being at its acme by the time 3 pints had been infused, whereas twenty minutes previously the heart was beating at a rate of from 140 to 170, as recognized by the stethoscope. The face became fuller, and the awful sunken look to a large extent disappeared. Restlessness became less, the intelligence became brighter, the skin became warm. Burkitt suggests that the poison of cholera attacks principally, or perhaps only, the vasomotor system, that the heart is not at fault, that the abdominal veins are holding most of the blood in the body, and that the treatment in this condition should be that of shock. He further noticed in a number of cases that if persons sleep after an injection of ½ or ⅓ grain of morphin their chances of recovery are good; that morphin does not induce sleep in those patients who are badly collapsed, but only stops the diarrhea and vomiting.

Heart, London

July

38 *Irregularities of the Mammalian Heart Observed under Aconitin and on Electric Stimulation. A. R. Cushny.
39 *Nodal Bradycardia. J. Mackenzie.
40 *Paroxysmal Tachycardia. T. Lewis.
41 *Measurement of Systolic Pressure in Man. L. Hill.

38. **Irregularities of the Heart.**—Under aconitin many forms of irregularity of the heart occur, but most of these may be reduced to certain types. These, according to Cushny, are the following: (1) Reversed rhythm, in which the impulse to contraction is generated in the ventricle and spreads upward to the auricle; (2) impaired conduction through the auriculoventricular bundle which may lead to partial or complete block in either direction; (3) alteration in the strength of the contractions in auricle and ventricle; (4) extrasystoles in auricle or ventricle which sometimes occur at regular intervals (continuous bigeminus); (5) sudden changes in the rhythm of the whole heart. Two or more of these types may be present simultaneously. Aconitin has a greater tendency to cause pulsus alternans than most other poisons, and this is ascribed to its production of exhaustion and of delayed recuperation of contractility. Other drugs may induce alternans in the damaged heart by increasing its irritability, and thus make demands which the contractility is unable to meet. Other forms of irregularity were observed by Cushny in unpoisoned hearts under the influence of cold and electric stimulation and are described.

39. **Nodal Bradycardia.**—Mackenzie found that the heart's action may start continuously from a place other than the normal starting place, and in the resultant rhythm the auricular systole no longer precedes the ventricular. This abnormal rhythm is provisionally called "nodal rhythm." The rate of the "nodal rhythm" is usually more frequent than the normal rate. Mackenzie describes a form of nodal rhythm of infrequent rate. This form of bradycardia may arise suddenly in a heart previously showing the normal rhythm, or it may arise in a heart previously showing the nodal rhythm with a rate more frequent than the normal. It may be quite regular or may show premature beats, or it may be continuously irregular with a tendency to long pauses. While related to the

more common forms of nodal rhythm, it may occur in a patient with a slight heart block.

40. **Paroxysmal Tachycardia.**—Lewis reports in detail the findings in a case of paroxysmal tachycardia of the variety in which the auricle is responsible for the ventricular beat. He points out that two forms of paroxysmal tachycardia are encountered; in one the sequence of contraction of the cardiac chambers is normal; in the other the auricle fails to contract at the usual instant in the cycle. In the first, or auricular form of the affection, extrasystoles occur, but their nature is different from the beats of the paroxysm. The rhythm of the paroxysm is one *sui generis*. The evidence is, on the whole, opposed to the view that the paroxysm is to be regarded as the result of altered central innervation. It is more rationally ascribed to an intrinsic change in the heart itself. It is probable that the rhythm between the paroxysms is the normal rhythm of the heart, and that the rhythm of the paroxysm is present during the paroxysm alone. Paroxysmal tachycardia (of a ventricular form) was readily produced experimentally by Lewis by ligation of the right coronary artery, and in this condition the dog's ventricle may beat at a rate of 400 a minute. The ventricles contract first and their contraction is followed by the auricular systole. Vagal stimulation, when the heart is in this condition, as a rule, slows or stops the auricle, while the ventricular rhythm continues unaltered.

41. **Arterial Blood Pressure.**—Hill shows by experiments that in reading systolic pressures there are two factors to take into account: (1) The actual maximal pressure of the cardiac output; (2) the conductance of the pressure wave by the artery. The force of the wave is damped down in soft arteries, as sound waves are damped by velvet. Blood-pressure readings should be taken, therefore, under uniform conditions, with patients lying horizontally, not emotionally excited, not after exercise, not after taking hot food, tea, coffee or alcohol, not after the hand and wrist have been warmed or chilled. Comparatively synchronous readings of hand and foot arteries, the effect on the readings of oscillating the pressure up and down, and the effect of local heat gives information as to the state of the arteries, the value of which will grow with extended clinical observation.

Annales de Gynécologie et d'Obstétrique, Paris

July, XXXVI, No. VI, pp. 385-441

42 Abdominal Hysterectomy for Cancer of Uterus. H. Hartmann.
43 Primary Epithelioma of Fallopian Tube. (Epithélioma primitif de la trompe.) P. Lecène.

Archives Générales de Chirurgie, Paris

July 25, III, No. 7, pp. 661-770

44 *Anesthesia by the Rectum. F. Legueu, L. Morel and H. Verliac. Commenced in No. 6.
45 *Treatment of Osteomyelitis Chronic from the First. (Ostéomyélite chronique d'emblée.) Marquis.
46 *Gonorrheal Phlebitis. D. G. Zesas.
47 *Bismuth Paste for Fistulas. (Le bismuthage des trajets fistuleux.) P. Mauclaire.

44. **General Anesthesia by Way of the Rectum.**—Legueu asserts that he has been able to eliminate the injurious factors in rectal etherization and states that its advantages are so great in operations on the face, mouth, neck and thorax that it deserves the preference in these cases. Irritation of the bowel, by the fumes of ether, can be avoided, he states, by blending the ether with oxygen, at body temperature, and preceding the application by a brief inhalation of ethyl bromid to relax the ileocecal valve. With this technic, general anesthesia by the way of the rectum is no more dangerous, he asserts, than by inhalation, unless the intestines are diseased. He uses a Y tube to convey the oxygen to the rectum, one branch conveying the oxygen alone, the other branch passing it through a flask of ether which thus mixes with the oxygen as it passes along, the two branches uniting in a single tube which conveys the mixture into the bowel. The oxygen and ether are rapidly absorbed by the bowel and there is no meteorism as when air is insufflated. He gives the details of experiments with 20 rabbits, 5 cats and 7 dogs to illustrate the harmlessness of this technic.

45. **Treatment of Osteomyelitis.**—Marquis calls attention to the panosteosis which inaugurates osteomyelitis chronic from the start, the Haversian canals, periosteal and medullary spaces all becoming ossified, without any acute stage. There is no necessity to sacrifice the limb; trephining will drain any possible collection of pus, and if the pain is not intense and if there are no signs of abscess or sequester it is best to temporize. The whole process may heal spontaneously, or if an abscess or sequester forms it can be treated as it develops. This form of chronic osteomyelitis is rare. He has found only a dozen cases on record besides the one he here records. The patient was a boy of 8, free from syphilis and tuberculosis, who began to limp, with some pain. The child was kept in bed for three months, but there was no improvement and the lower part of the femur became greatly enlarged, but without tenderness and with no symptoms on the part of the knee. The *x*-rays showed the compact tissue forming a cylinder nearly twice the circumference of the femur above. Treatment was restricted to rest; the patient is still under observation, but recovery occurred in the cases on record, with or without operative intervention.

46. **Gonorrheal Phlebitis.**—Zesas reports a case and commends immobilization in treatment, the limb being raised to control the edema. The patient was a man of 30 with chronic gonorrhea which had been rebellious to all measures for a year. The phlebitis developed suddenly after a long walk.

47. **Bismuth Paste for Fistulas.**—Mauclaire found the bismuth paste of the greatest use in defining the indications in a case of tuberculosis of the spine, and he commends it for all such cases when examination of the urine shows the integrity of the kidneys. This preliminary examination of the urine is especially necessary, he asserts, when there has been long suppuration.

Bulletin de l'Académie de Médecine, Paris

July 27, LXXIII, No. 30, pp. 81-134

48 Pyloric Stenosis from Aberrant Pancreatic Lobule. P. Reynier and Masson.
49 Case of Meningococcus Septicemia without Meningitis. A. Netter.
50 *Outcome of Serotherapy in Sixty-eight Cases of Cerebrospinal Meningitis. Id.

50. **Serotherapy of Epidemic Meningitis.**—Netter shows the great improvement that has followed the introduction of serotherapy of epidemic cerebrospinal meningitis, the reduced mortality and duration of the disease and the lesser proportion of persisting disturbances. In one case he made twenty-two intraspinal injections and one intravenous injection before the grave disease with its three relapses was conquered. Discovery of the meningococcus on lumbar puncture gave the signal for renewed injection each time. He is convinced that certain other patients might have been saved finally if the serotherapy had been kept up more perseveringly.

Lyon Médical, Lyons

XLI, No. 24, pp. 1201-1256

51 Use of Fat Substances in Dermatology: Indications, Combinations and Therapeutic Rôles. (Corps gras en dermatologie.) Carle. Commenced in No. 22.

No. 26, pp. 1317-1372

52 *Renal Tuberculosis Simulating Chronic Nephritis. (Tuberculose rénale fermée à forme de néphrite chronique.) L. Gallavardin and J. Rebattu.

No. 27, pp. 1-54

53 Moist Erythema in Alcoholics. L. M. Bonnet.
54 Peritonitis from Perforation of Cancer of the Rectum. A. Chalier.

No. 28, pp. 55-96

55 *Method of Opening into Ureter or Bladder through the Vagina without Risk of Fistula. Rochet.

No. 29, pp. 97-136

56 The Lineage and Internal Secretion of Connective Tissue Cells. (La lignée des cellules connectives et leur caractère spécifique majeur; l'activité sécrétoire rhagiocrine.) J. Renaut.
57 First Phases of Defense of Connective Tissue against Experimental Tuberculous Infection. (Les premiers stades de la defense du tissu conjonctif contre sa tuberculisation expérimentale.) J. Renaut and G. Dubreuil.

52. **Tuberculosis of the Kidney.**—In the two typical cases described the syndrome seemed to be that of ordinary Bright's disease in every respect, and nothing suggested the old tuberculous kidney lesions revealed by the autopsy. The "closed" tuberculous lesions, cheesy changes, etc., coexisted with diffuse and severe lesions of non-specific chronic nephritis. Gallavardin does not deny that an "open" tuberculous process in the kidney might spontaneously change into a "closed" lesion, but thinks it more probable that in these cases there is an autonomous

form of renal tuberculosis primarily and definitely "closed." The patients were men of 57 and 60.

55. **Method of Opening Bladder or Ureter Through the Vagina.**—Rochet has opened up the bladder or ureter in three cases by a simple vaginal technic which excludes the possibility of development of a fistula while it allows ample access for extraction of a calculus or for other intervention. About 1 cm. back of the mouth of the urethra and below, a transverse incision, about 3.5 cm. long, is made through the vaginal mucosa and through this alone. Then with a grooved sound the mucosa is worked free from the urethra above and then from the bladder. This mobilization of the mucosa is easily done, and it can then be pushed back to permit ample access to the bladder and ureter.

Presse Médicale, Paris

July 28, XVII, No. 60, pp. 537-544

58 Systematic Hyperesthesias and Allied Disturbances. F. Trémolières.

July 31, No. 61, pp. 545-552

59 Small Epidemic of Beriberi in French West Africa. Saltet and Legrand.
60 Sporotrichosis of Eyelids. (Sporotrichose palpébro-conjonctivale.) A. Cantonnet.
61 When to Administer Colchicum. A. Martinet.

August 4, No. 62, pp. 553-560

62 *Survival of Thyroidectomized Animals given Calcium or Magnesium. A. Frouin.
63 Malta Fever at Constantinople. Euthybule and Gabriélidès

62. **Survival of Animals After Removal of Entire Thyroid Apparatus.**—Frouin's extensive experimental research confirms the power of calcium and magnesium to neutralize the otherwise fatal effects of complete removal of the thyroid apparatus, as described in an editorial in THE JOURNAL, Jan. 30, 1909, page 388. He concludes that calcium salts have a promising future in treatment of thyroid insufficiency.

Revue de Chirurgie, Paris

August, XXIX, No. 8, pp. 253-412

64 *Rational Treatment of Fractures of the Base of the Skull E. Vincent.
65 *Partial Atrophy of the Optic Nerve in Fractures of Base of Skull. A. Cantonnet.
66 Indications and Operative Results in Abdominal Injuries from Small Bullets. (Plaies pénétrantes de l'abdomen par petits projectiles de guerre.) J. Doche.
67 *Tumors of the Spermatic Cord. (Tumeurs du cordon spermatique.) M. Patel and A. Chalier. Commenced in No. 1.

64. **Fracture of Base of the Skull.**—Vincent is convinced that the only rational treatment of fracture of the base of the skull is to forestall the development of meningitic disturbances, opening a way for the escape of infectious agents and their toxic products, without waiting for them to make their influence felt on the meninges. In most cases the fracture communicates with the exterior by openings into the cavities in the face or the petrous bone, but attempts to disinfect by rinsing and spraying through these cavities have always proved ineffectual. After symptoms of meningitis have developed, it is then too late to arrest the fatal progress of the infectious accidents. Treatment should forestall them, and this is possible by trephining at once, leaving a permanent opening for the escape of the cerebrospinal fluid. There is thus no retention and no cultivation of the microbes in a closed cavity to enhance their virulence. Both microbes and toxins are eliminated as soon as they develop, and this is the rational treatment of all serous membranes when infection threatens or is installed. Repeated lumbar puncture is useful in aiding the elimination of the infectious products. Cushing's subtemporal trephining answers the same purpose as lumbar puncture, but has a more rapid and energetic action, although Cushing does not recommend it for more than the relief of compression. Vincent reports two cases in which it answered its purpose admirably. He trephined as near the fracture as possible, incising the dura mater to expose the surface of the brain over the entire extent of the opening in the bone, then introducing a drain down to the brain and suturing the skin around it. He kept up the drainage for about two weeks and the patient in his first case recovered without a sign of meningitis, although the tympanic membrane and Eustachian tube had been torn by the accident, as evidenced by the bleeding from both, and the fractured parts gaped considerably. The patient was a man of 60. The results at first were equally good in the second case, but lack of care later, after removal of the drain, permitted tardy infection after the patient was supposed to have been cured. In this case thirty hours had elapsed after the accident before the wound was taken care of. With the Cushing subtemporal decompressive technic the trephining is done in the temporal region, where the bone is thinnest; the temporal muscle is merely pushed aside, not severed. In case of rupture of the meningeal artery or one of its branches the extradural clot is reached at once and the artery can be easily ligated. In most cases of fracture of the base of the skull the point of the temporal and the base of the frontal lobe are most liable to be injured, and the subdural effusion resulting is most readily drained by this technic, as also the edema resulting from the contusion of the brain. In conclusion, he adds that this intervention reduces materially the number of complications, especially traumatic neuroses, which are so frequent in these cases of bursting fracture of the skull healing without operative intervention.

65. **Partial Atrophy of the Optic Nerve After Fracture of the Base of the Skull.**—Cantonnet states that in 268 cases on record the injury of the visual apparatus from fracture of the base of the skull involved the optic nerve close to or in the optic canal in all but 43 cases. The lesions were bilateral in 17 cases, and they entirely retrogressed in 6 of these and in 4 of the 208 unilateral cases. In 2 cases personally observed the atrophy was only partial on one side. The injury of the optic nerve is generally due to a fissure of the optic canal; vision, though totally lost at first, may gradually return. It is necessary to wait for some time before deciding as to the outcome; blindness coming on after the accident may subside partially or entirely in time, and, on the other hand, after an interval of normal vision blindness may become installed later. His first patient was a man of 60; after a fall from a horse unconsciousness for half an hour and blindness in the left eye with defective vision in the right were the only signs of fracture of the base of the skull. Vision gradually improved in the right eye by the end of a year and is now 1/6 normal. In the second case a physician hit the left orbit against a ladder; there was no unconsciousness, merely a little dizziness, but the eye was apparently totally blind thereafter for two weeks, after which vision in this eye began to improve and by the twenty-fifth day had recuperated all that was possible, and there has been no change since. The partial optic atrophy in this case affects only the macular fibers, the peripheral fibers being still intact.

67. **Tumors of the Spermatic Cord.**—Patel and Chalier here conclude their long study of this subject with summaries of 110 cases.

Semaine Médicale, Paris

July 28, XXIX, No. 30, pp. 349-360

68 *Pupil Sign of Aortic Insufficiency: Circulatory Hippus. M. Landolfi.

August 4, No. 31, pp. 361-372

69 *Indications for Use of Electricity in Ileus. (Le lavement électrique dans l'iléus.) F. Lejars.

68. **Pupil Sign of Aortic Insufficiency.**—Landolfi announces that in pure aortic insufficiency, free from other valvular lesions and aneurism there is sometimes a true hippus, that is, the iris contracts and dilates synchronous with the heart beat, contracting with the systole and dilating with the diastole. He found this sign marked in one of the 24 patients with aortic insufficiency examined, and later was able to elicit it in three more after giving fifteen drops of digitalis a day for four days. It seems to be the equivalent of Corrigan's pulse and the other signs of aortic insufficiency, but, unlike them, it seems to be strictly limited to well-compensated, pure aortic insufficiency. It is merely an exaggeration of the physiologic cardiovascular hippus in the peripheral vessels and iris. The "circulatory hippus" was observed also in a dog with experimental aortic insufficiency, when heart stimulants were given.

69. **Electrical Treatment of Ileus.**—Lejars occasionally has witnessed good effects from application of electricity in ileus, and thinks that this method should be a routine measure in hospitals, at least. When the occlusion is incomplete, and the result of prolonged constipation, electricity, applied early, is

an important aid in treatment. But in occlusion from cancer it should be used with great caution. Complete ileus contraindicates more than a single test application of the electricity, the physician being ready to proceed with a laparotomy at need. Whenever there is a suspicion of appendicitis or peritonitis electrical treatment is strictly contraindicated and dangerous. Under other conditions, if applied gently, with a medium current and without too frequent interruptions, it is not dangerous in itself, but may become so if too prolonged or too often repeated. He refers especially to the method introduced by Boudet of Paris twenty years ago.

Archiv für Gynaekologie, Berlin

LXXXVIII, No. 3, pp. 417-618. Last indexed July 24, p. 330

70 *Operation for Uterine Prolapse. Heidenhain.
71 *Suprarenals and Sexual Characteristics. (Nebennieren und Geschlectscharakter.) Bortz.
72 *Operative Treatment of Extensive Hernia in Linea Alba. M. Henkel.
73 Intrauterine Trophoneurotic Skin Lesions. (Intrauterine trophoneurotische Hautaffectionen.) H. Sieber.
74 Tumor Formation in the Ovaries or Testicles of Pseudohermaphrodites. (Zur Kenntniss der Geschwulstbildungen an den Keimdrüsen von Pseudohermaphroditen.) P. Zacharias.
75 Prolonged Latency of Chorioepithelioma. E. Krösing.
76 *Retrospect and Outlook in Treatment of Contracted Pelvis. (Therapie des engen Beckens.) Scheffzek.
77 Organs that Support and Move the Uterus. (Zur Kenntniss der Befestigungs- und Bewegungsorgane des Uterus.) N. J. Macry.

70. **Operation for Uterine Prolapse.**—Heidenhain gives an illustrated description of the stretching apart of the cleft between the levator ani muscles in childbirth, of the resulting incompetency of the supporting floor of the pelvis, and the means to remedy it by closing up the stretched cleft to restore normal conditions.

71. **Connection Between Suprarenals and Sexual Characteristics.**—The case reported with illustrations by Bortz differs from others on record, as the patient was not a hermaphrodite, but an apparently normal girl of 16 who had been menstruating for a year. Menstruation suddenly ceased then and a full growth of beard and hair on the body followed, while the voice changed to a more masculine tone. Otherwise the girl was feminine in appearance. She soon succumbed to an intercurrent phlegmonous affection following several felons, and the suprarenals were found enlarged and degenerated, actual suprarenal struma in both, while the ovaries were atrophied.

72. **Operative Treatment of Extensive Hernia of the Linea Alba.**—Henkel remarks that the choice of an anesthetic is of great importance, as a tendency to vomit strains the wound too much; he prefers lumbar spinal anesthesia for the purpose. Good results are obtained with a technic which makes a thick pad over the linea alba where the tissues are liable to be very thin in old neglected cases of hernia at this point. He incises the skin and fat tissue horizontally and turns it back, above and below, to allow space for an oval incision through the fascia. The edges of this oval incision are then drawn together and sutured, pushing inside all the tissue between. The muscles are then drawn together and sutured, then the fascia and finally the transverse skin wound. He claims a number of advantages for this technic.

76. **Retrospect and Outlook in Treatment of Contracted Pelvis.**—This communication from the maternity at Breslau, of which Baum is director, reviews the experiences with 1,301 cases of contracted pelvis encountered among 11,126 parturients in ten years. Premature delivery was induced systematically in 23.9 per cent. of 1,011 cases of contracted pelvis; 54.2 per cent. of the women were spontaneously delivered at term; perforation was required in 1.2 per cent.; high forceps in 3.7 per cent.; Cesarean section in 1.7 per cent.; pubiotomy in 2.4 per cent. and prophylactic version was attempted only in 0.7 per cent. The mortality of the children was 18.8 per cent., including 20 children delivered spontaneously. Scheffzek discusses the indications and results, his final conclusions being that the general practitioner must be trained in methods of artificial premature delivery, prophylactic version and high forceps—and should be ready to apply them at need in the home when it is impossible for him to convince the parturient or the family that the ideal management of contracted pelvis is the expectant supervision possible in an institution with all in readiness for operative delivery if demanded. The former methods are not the ideal, but they are the best possible in the home, and give fairly good results.

Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

XIV, No. 2, pp. 167-340. Last indexed July 31, p. 420

78 Arrested Development of Müllers Ducts. (Hemmungsbildungen der Müllerschen Gänge im Lichte der vergleichenden Anatomie und Entwicklungsgeschichte.) E. Holzbach.
79 Rudimentary Development of Müllers Ducts. (Zur Lehre von der rudimentären Entwicklung der Müllerschen Gänge.) O. Büttner.
80 Case of Actinomycosis of the Female Sexual Organs; Twenty-third on Record. (Aktinomykose der weiblichen Geschlechtsorgane.) A. Hamm and R. Keller.
81 One Hundred and Fifteen Forceps Deliveries. (Ueber Zangenoperationen.) E. Kurihara.
82 Need and Incapacity for Breast Nursing. (Zur Frage der Stillungsnot und Stillungsunfähigkeit.) G. Bjelenky.
83 *Multiple Carcinomas. (Multiplizität der Karzinome.) T. Tsuji.
84 Behavior of the Uterine Mucosa with Myomas. (Verhalten der Uterusschleimhaut bei Myomen.) Y. Iwase.
85 *Cancer Statistics. (Zur Karzinomstatistik.) L. Seitz.

83. **Multiple Carcinomas.**—Tsuji reports the case of a woman of 58 with a carcinoma of the uterine cervix, a second at the mouth of the urethra and a third on the nostril. In connection with this case he reviews the cases of multiple carcinoma in the literature.

85. **Permanent Cures of Cancer.**—Seitz reports from Döderlein's clinic at Munich 1,044 cases of carcinoma during the last twenty years. The operability averaged only 20 per cent., and thus only 221 radical operations were performed. Only 3.8 per cent. of the 850 patients with carcinoma of the cervix and 30 per cent. of the 20 with carcinoma of the body of the uterus have been permanently cured. In the latter group 6 of the 10 patients operated on have been free from recurrence for more than 5 years. Only 8 have been permanently cured of the 46 radically operated on out of the 475 cases of carcinoma of the uterine cervix, and 24 of the 90 operated on of the 375 patients with carcinoma of the vaginal portion of the uterus. The permanent cures are thus 36 per cent. and the absolute cures 6.8 per cent. in this latter group, while in the cervix group the figures are 27 per cent. permanent cures and 1.75 per cent. absolute cures.

Berliner klinische Wochenschrift

August 2. XLVI, No. 31, pp. 1437-1476

86 Cripples in Germany. (Umfang und Art des jugendlichen Krüppeltums und der Krüppelfürsorge in Deutschland.) F. König.
87 Paralysis of the Shoulder and Arm with Cervical Ribs. (Einige ätiologisch interessante Fälle von Schulter-Armlähmung nebst Bemerkungen zur Pathologie der Halsrippen.) M. Bernhardt.
88 Improved Technic for the Cutaneous Tuberculin Reaction. (Zur Technik der v. Pirquet'schen Cutanreaktion.) A. Buschke and P. Kuttner.
89 Papillary Tuberculosis of Vaginal Portion of Uterine Cervix. K. Everling.
90 *Abdominal Manifestations with Beginning Pneumonia. B. Glaserfeld.
91 *Diabetic Lipemia. M. Adler.
92 *Low Intestinal Lesions. (Zur Diagnostik und Therapie der tiefsitzenden Dickdarmerkrankungen.) E. Rosenberg.
93 *Morbid Blushing. (Zur Psychologie und Therapie des krankhaften Errötens.) O. Aronsohn.
94 Stereoscopic Roentgen Lantern Slides. (Projektion von stereoskopische Röntgenbildern.) M. Levy-Dorn.

90. **Abdominal Phenomena with Incipient Pneumonia.**—Glaserfeld has encountered two cases in which the syndrome deceptively simulated appendicitis but in a few days the abdominal symptoms subsided as severe pneumonia became installed. In one of the cases there was an interval of nine days before the symptoms of pneumonia became manifest. In both these cases and in 13 of 21 reported by Bennecke the pneumonia terminated in an abscess or other serious complication. The necessity for differentiating these cases of "pneumogenic abdominal shock" from actual appendicitis is beyond question, as a useless appendicectomy would weaken the pneumonia patient. The most important points in differentiation are: (1) the expression of the face, which is not so distressed as in appendicitis; (2) the tongue, which is generally moist and not much coated; (3) the rapid breathing; (4) the rigidity of the abdominal wall, which is never so circumscribed as in beginning appendicitis; the abdomen is only superficially tender, deep pressure is not particularly painful; (5) careful objective examination of the chest, regardless of the assumed

appendicitis. Differentiation may be rendered much more difficult by drugs previously given. In his first case the patient was subject to lead colic and opium was given at first, which masked the diagnosis for a time. It is probable that the pain caused by the inflammation in the lung is reflected into the abdomen. The irritation may even be transmitted through the sympathetic nervous system to the splanchnic nerves, inducing tympanites.

91. **Diabetic Lipemia.**—Adler reports two cases which show that the lipemia is due to cholesterin and not to lecithin.

92. **Diagnosis and Treatment of Rectal Lesions.**—Rosenberg has obtained excellent results in treatment of proctitis and sigmoiditis by application of a powder after thorough rinsing. The powder is a mixture of from 15 to 30 parts tannin to 100 parts magnesia usta, to which some disinfectant may be added. He insufflates the powder through a long tube commencing at the upper part and powdering downward. He also gives an illustrated description of an instrument for dilating strictures, spreading concentrically the 5 or 6 stout branches by a gradulated thumb screw.

93. **Morbid Blushing.**—Aronsohn has found that persons addicted to excessive blushing are diffident, anxious to appear different from what they really are, and that the tendency to morbid blushing can be overcome by urging them to be more natural and true. He has always been able to cure it by moral suasion supplemented by a little hypnotic suggestion to inspire the patient with courage and decision.

Centralblatt für die Grenzgebiete der Medizin und Chirurgie, Jena

July 30, XII, No. 13, pp. 481-528

95 *Latest Methods of Treating Inoperable Cancers. (Neuere Behandlungsmethoden bei Inoperablen Krebsgeschwülsten.) K. H. Schirmer. Commenced in No. 8.
96 *Persistence of Thymus and Thymus Hyperplasia. C. Hart. Commenced in No. 9.

95. **Treatment of Inoperable Cancer.**—Schirmer reviews critically 245 articles in recent literature on the treatment of inoperable cancer, especially with radium, fulguration, serum (toxin) and trypsin. Czerny has applied fulguration in 59 cases and states that it accomplishes in half an hour more than Roentgen or radium treatment in three months. The wounds are very painful and sometimes the fulguration seems to stimulate the tumor to grow. He has never seen enlarged glands retrogress under its influence, and it has only a slight action at a distance. Moore's experiments have shown that scraps from a mouse tumor retain their vitality after immersion in liquefied air for from twenty to thirty minutes, thus resisting a temperature said to kill all germs and bacteria. This experience speaks against a parasitic origin of cancer. In order to obtain a correct opinion of the efficacy of the different methods of treating inoperable cancer, the experiences should be published with all details, body weight, blood picture, local details of the tumor, subjective findings, etc., with records of the duration, intervals and dosage of the measures used. The future seems to lie in a combination or mixture of the various measures, to attack the cancer from all sides, with local and general measures, internal and external. Podwyssotzki explains cancer as a battle between the younger and older cells, the younger devouring the older, and our aim should be to promote this autophagism for which he recommends potassium iodid, arsenic, alien serum, tuberculin and radium, to which list Schwartz adds the *x*-rays as one of the most effectual measures. In conclusion Schirmer calls attention to the central office at Berlin of the International Cancer Research Association which offers to supply data and information on request in regard to the experiences to date with any of the methods of treating cancer in vogue. One of the statutes of the association states that it is to be an international information bureau for all questions affecting cancer research.

96. **The Thymus.**—Hart concludes his critical review of 158 articles in recent literature on the anatomy, pathology and physiology of the thymus and records of cases of "thymus death," with the statements that the thymus must be regarded as an epithelial organ and probably as an organ with an internal secretion. It seems evident that an excess rather than a deficiency of thymus tissue and its metabolic products is injurious for the organism. It is possible, although not proved, that the death of new-born infants in asphyxia is "thymus death." The mechanical thymus death is usually due to a combination of several factors. The results of excessive thymus functioning are an autointoxication with a special harmful influence on the innervation of the heart which explains the sudden deaths in which the thymus is found much enlarged. The recent publications on the frequency of persisting large thymus in exophthalmic goiter demonstrate that the thymus is an important injurious factor in these cases and explains the postoperative heart failure of patients with exophthalmic goiter. The abnormally increased and perhaps perverted internal secretion of the persisting and enlarged thymus is responsible for the instability of the heart which causes it to break down at even slight extra demands on it. He is inclined to recommend surgical intervention in case of symptoms of "hyperthymization" without waiting for severe disturbances. Mere tracheotomy does no good; the gland must be partially or totally removed or space made for it by partial resection of the manubrium. Persistence and hyperplasia of the thymus are of the greatest importance for the surgeon; the discovery of a persisting thymus in an adult should contraindicate general anesthesia, especially with chloroform. Exophthalmic goiter should forbid any operation unless the thymus is previously removed. There does not seem to be much prospect of relief from Roentgen-ray exposures as they seem to act only on lymphadenoid tissue.

Deutsche medizinische Wochenschrift, Berlin

August 5, XXXV, No. 31, pp. 1337-1376

97 *Opsonins in Typhoid Bacillus-Carriers. (Opsoninuntersuchungen bei Typhusbazillenträgern.) W. Gaehtgens.
98 *Isolysin in Blood Serum with Cancer. (Vorkommen von Isolysinen im Blutserum bei malignen Tumoren.) H. L. Richartz.
99 *The "Remains" Test in Diagnosis of Gastric Ulcer and Catarrh. (Restprobe in der Diagnostik von Magengeschwür und Magenkatarrh.) K. Grandauer.
100 *Treatment of Congenital Megacolon. (Beitrag zur Hirschsprungschen Krankheit.) Sommer.
101 Healing under Fibrin and Serum Supplied from Without. S. Bergel.
102 Deep Roentgen-Ray Exposures. (Erfahrungen mit der Dessauerschen Röntgen-Tiefenbestrahlung.) Schüler.

97. **Opsonic Index in Typhoid Bacilli Carriers.**—Gaehtgens has found that the opsonic index returns to normal in a few months after typhoid, unless the persons become chronic bacilli-carriers, in which case the opsonic index persists high.

98. **Hemolysis with Special Reference to Cancer.**—Richartz reports negative findings in 112 normal individuals and in 103 with various bronchial, kidney, joint, gastrointestinal and other affections, syphilis and benign tumors, while in 73 cases of malignant tumors hemolysis was pronounced in 46 per cent., as also in 52 per cent. of 40 cases of tuberculosis. He compares his findings with those of Crile. His conclusions are that under certain circumstances hemolysis may be of differential importance for the diagnosis of gastrointestinal cancer. Benign stenosis, peptic ulcer, nervous dyspepsia and chronic gastritis are not accompanied by hemolysis. He regards the isolytic element in the serum as a reaction of the organism to the destruction of the red corpuscles by the toxic products of the cancer or tuberculosis.

99. **The "Remains Test" in Stomach Lesions.**—Grandauer has applied the principle of the food-remains test to detect ulceration or excessive secretion in the stomach. In normal conditions the smooth surface of the stomach lining allows it to be completely emptied, but when the surface is ulcerated or covered with tenacious mucus, particles cling to it. In order to test this he gives the patient at night 2 gm. (30 grs.) of bismuth. The next morning he takes a fat-zwieback test breakfast, and an hour later the stomach content is siphoned out; the stomach is then rinsed out with 100 c.c. of water, and then it is rinsed again until the fluid is completely clear. This test applied to 64 persons proved a reliable index for ulcer or severe catarrh, and in the absence of the latter sustained the assumption of gastric ulcer when large amounts of bismuth were found in the rinsing water. This pathologic retention of bismuth does not occur in the absence of ulcer except with pronounced catarrhal gastritis.

100. Congenital Megacolon.—Sommer's case was distinguished by the sudden onset of the signs of trouble which had remained comparatively latent until the age of 13. The results of the technic used commend it to others. An artificial anus was made into the cecum; two weeks later a median laparotomy disclosed the enormous sigmoid flexure. A small incision was then made into the left groin, through which the sigmoid loop was pushed and sutured to the abdominal wall. The median incision was then sutured, and two days later the sigmoid loop was resected. The preliminary bringing out of the loop proved an important aid for rapid healing after the resection.

Münchener medizinische Wochenschrift

July 27, LVI, No. 30, pp. 1521-1576

103 *Physiology of Milk Secretion. H. Cramer.
104 Changes in Character and Moods as Result of Arteriosclerosis. (Arteriosklerotische Verstimmungszustände.) L. W. Weber.
105 The Cobra Venom Hemolytic Test. (Ueber den von Much und Holzmann angenommenen Einfluss des Blutserums von Geisteskranken auf die Kobragifthämolyse.) G. Eisner and A. Kronfeld. Id. (Much-Holzmannsche Psychoreaktion.) J. H. Schultz. Id. F. Plaut.
106 Ocular Reaction with Deuteroalbumose. K. Weihrauch.
107 Suture of Recent Perineal Tears. (Zur Vereinigung der frischen Dammrisse. Muskelnaht, Michelsche Klammern.) O. Betz.
108 Transplantation of Spleen. (Ueber Milztransplantationen.) H. Lüdke. Commenced in No. 29.
109 Medical Faculty at Leipsic in 1523. (Aus Leipzigs medizinischer Vergangenheit.) K. Sudhoff.

August 3, No. 31, pp. 1577-1624

110 *Relations between the Lipoids and Action of Drugs. (Beziehung zwischen den Lipoiden und pharmakologischer Wirkung.) H. H. Meyer.
111 Has the Causal Agent of Trachoma been Discovered? (Ist der "Trachomerreger" entdeckt?) S. Rimpler.
112 Cholesteatoma at the Umbilicus. (Nabelcholesteatom.) H. Coenen.
113 Kinking of Sigmoid Flexure. (V-förmige Schlinge der Flexur.) H. Thiemann.
114 Etiology of Deforming Arthritis. J. Heckmann.
115 Cobra Venom Hemolytic Test. (Die Kobrareaktion.) W. Geissler.
116 Is Phrenocardia a Morbid Entity? (Ist die von Max Herz beschriebene "Phrenokardie" eine scharf abzugrenzende Form der "Herzneurosen"?) G. Treupel.
117 Treatment of Whooping Cough Spasms by Lumbar Puncture and Douche. (Behandlung der Keuchhustenkrämpfe mittels Lumbalpunktion und Uebergiessungsbädern.) Eckert.
118 Intravenous Injection of Diphtheria Antitoxin. (Intravenöse Injektion des Diphtherieserums.) E. Schreiber.

103. Functional Independence of Mammary Glands and Stimulation of Function by Sucking.—Cramer ascribes great importance to sucking of the nipple as the main factor in setting up the mammary secretion, and reports a number of cases which confirm his assumption that the mammary gland is to a certain extent independent of the other organs of the genital apparatus and that it can be stimulated to secrete milk, even before the termination of the pregnancy, by letting a child suck the breast. There is certainly some factor in a pregnancy which inhibits the secretion of milk; even in twin births the milk does not "come" until after the birth of the second twin, although a considerable interval may elapse between the births. As it is so important for the new-born animal to have its mother's milk, Nature compels the already born to seek their food elsewhere as soon as the mother becomes gravid again. But at the same time systematic sucking will install the mammary secretion and counteract this inhibiting tendency. Mothers can leave their infants for weeks at a time and then be able to suckle them on their return. Cramer mentioned a case of the kind in which two three-week intermissions on account of operations did not interfere with resumption of the child's nursing on the mother's return home.

110. Relations Between Lecithin, Cholesterin and Other Lipoids and the Action of Drugs.—Meyer ascribes anesthesia to the physical change in the conditions of the cell lipoids. The lipoid-dissolving anesthetics cause a change in the entire makeup of the protoplasm. His communication, read at the recent International Congress for Applied Chemistry, presents evidence to sustain this view. It explains why the effects of anesthetics vanish as the unstable, reversible combination, dependent on the tension of the anesthetic, is broken up. It is thus evident that the cell lipoids are essential vital elements of the protoplasm.

Therapie der Gegenwart, Berlin

August, L, No. 8, pp. 361-408

119 *Disturbances from the Food in Breast-Fed Infants. (Ernährungsstörungen der Brustkinder.) H. Finkelstein.
120 Serous Expectoration after Puncture of Pleura. A. Wassmuth.
121 *Relations between Nose and Other Organs of the Body. (Beziehungen der Nase zu anderen Organen des Körpers.) B. Goldschmidt.
122 Direct Inspection of Pharyngeal Region. (Meso- und Hypopharyngoskopie.) F. Schilling.

119. Disturbances from the Milk in Breast-Fed Infants.—Finkelstein admits the possibility that a woman's milk might be toxic, but is convinced that this is the very rarest exception. He protests against the assumption current among the laity and some physicians that if a child is not thriving it is because the mother's milk is not good. In nearly every instance the indigestion ascribed to the composition of the milk is the result of an undersupply or, more frequently, to an oversupply. When this factor can be eliminated, if a child is not thriving on breast milk, there is some constitutional anomaly interfering with the proper digestion of the breast milk. The indigestion occurs entirely independent of the amount of milk ingested, and seems to be the result of a peculiarly irritable condition of the stomach, the manifestation of a neuropathic predisposition. All the children in the family are liable to display this same tendency to digestive disturbances on breast milk, and the history of the family generally contains records of tics, migraine, nervous headache, neurasthenia, hysteria, universal tendency to gastroptosis, enteroptosis, etc., or Stiller's universal asthenia. Examination of the infant will generally reveal some of these stigmata, and children who have dyspepsia on breast milk generally grow up lean and nervous, usually bright, but inclined to nervous dyspepsia, overexcitable vasomotor system, etc. He calls attention further to the fact that the stools may have an abnormal appearance while still the child is thriving. Determination of phosphates in the urine is a much more reliable sign of something wrong than the aspect and consistency of the stools, as the slightest disturbance in health is revealed by the appearance of phosphates in the urine. In practice, however, if the child is not being fed too little or too much, and its weight is duly increasing, the mother can be reassured even if the stools are abnormal. There is no need to torment the child with drugs or change to a wet-nurse—these first render actual the dreaded disturbance. The syndrome of indigestion in breast-fed infants corresponds to that in bottle-fed infants on mixtures containing considerable fat and sugar with little salt and casein. The neuropathic indigestion is generally observed early; if the child gets past the first weeks without it, there need be no fear of it later. When it develops it continues about the same for several weeks and then gradually improves or it may persist for a number of months. No drugs give any relief, but the dyspepsia of breast-fed infants is cured promptly when they are put on a mixture of cow's milk. The restless, crying, weakly infant begins to thrive at once after this change to cow's milk, the complete change in the gastric chemistry evidently providing better conditions for the oversensitive organ. In his practice he tries to ward off this resort to cow's milk as long as possible. Buttermilk, sweetened, or skim milk is the best substitute for a certain proportion of breast feeding, especially when the tendency is toward restlessness and colic. He is generally able to accomplish the desired result with three breast and three cow's milk feedings, even in the most serious cases, satisfied if the infant is sleeping well and increasing in weight, and paying no attention to the aspect and consistency of the stools. In his experience the children did not show marked progress until they were taking from 100 to 120 calories; some children required surprisingly large amounts on this mixed feeding. Whether this extra demand was due to the extra exercise of the restless children or to loss of energy from increased fermentation or was merely a peculiarity special to the existing constitutional anomaly, is a mystery. He has never found it necessary to wean the infant completely, although in two cases this was warded off only by a change of scene, the mother taking the infant into the country—another argument in favor of the nervous origin of the indigestion in these cases. He emphasizes the necessity for studying with special care all such cases of indigestion in breast-fed infants and the prompt and certain means of treating them, as otherwise the children are liable to be allowed to suffer needlessly, and confidence in the superiority of breast nursing may be shaken.

121. **Nerve Connections Between the Nose and Other Organs of the Body.**—Goldschmidt calls attention anew to the close connection between the nose and certain other organs, and relates a number of striking instances of complete cure—by cauterization of certain points in the nose—of pain in the stomach, genitalia, in regions innervated by the lower spinal nerves and in the head and face. His experiences confirm the assertions of Fliess in regard to the close relation between the nose and sexual organs, but he thinks that other organs are involved with equal frequency. He has not been able to find any special point in the nose connected with the various organs, but, as a rule, when relief follows application of cocain to any part of the nose, a permanent cure is obtained by cauterizing the spot with trichloracetic acid. He cites a number of instructive examples of each type. Nearly all the patients had applied merely for some nasal affection, and the discovery of the other trouble was a casual incident. In one case a woman of 30, being treated for a slight throat trouble, casually mentioned that she had had repeated gall-stone colics for seven years but had never passed any gall-stones and no treatment had been able to ward off the attacks which utterly prostrated her. He applied a cocain tampon to the outer end of the left middle turbinate during an attack and the pain was reduced in a few minutes. He cauterized the spot later and the patient was free from pain for a long time; then the colic recurred, on which he resected the part of the turbinate involved and also cocainized the outer end of both inferior turbinates and there has been no recurrence of the colic since. In another case a medical student, 28 years old, had suffered for ten years from vomiting, nausea and intense pain in the stomach after every meal, and had been under the treatment of many internists, in turn, without the slightest relief. After cocainization of the outer end of the middle turbinates the sensation of oppression in the stomach vanished. These points were then cauterized and the patient was told to eat anything he chose; notwithstanding a hearty diet there was no recurrence of pain or nausea until after the scab had dropped off, when the bone was resected and the outer end of the left inferior cauterized, since which there has been no further disturbance, the patient having been entirely cured for nearly two years. In another similar case the patient was not told that the little operation on the nose had anything to do with the stomach trouble, so that suggestion had nothing to do with the prompt and permanent cure. Cocainization of the nasal mucosa also proved effectual in curing subjective auditory and visual symptoms, and neuralgia in the face—the temporary breaking of the reflex arc evidently having a remarkably favorable influence on the disturbance. Migraine, he states, is of nasal origin in many cases, the progress of rhinology having explained it as a reflex from the nose. He warns that the nose is too important for heedless operations, while its intimate connection with so many vital organs deserves careful study.

Wiener klinische Wochenschrift, Vienna

August 5, XXII, No. 31, pp. 1091-1118

123 Analysis of Electrocardiogram. H. Eppinger and C. J. Rothberger.
124 *Palpation Signs of Enteroptotic Predisposition. (Palpatorisch bestimmbare abdominale Zeichen der asthenischen Konstitutionskrankheit Stillers.) T. Hausmann.
125 Behavior of Appendix in Status Lymphaticus. (Verhalten des Wurmfortsatzes bei Lymphatismus.) H. Shiota.
126 Complement-Binding Substances in Tuberculosis. M. Laub and J. Novotny.

124. **Movable Viscera as Sign of Predisposition to Enteroptosis.**—Hausmann has been making a special study of deep palpation of the intestines and states that Stiller's congenital universal asthenia is revealed by discovery of a palpable and movable pylorus, unusually low location of the greater curvature of the stomach and of the transverse colon or a movable cecum and sigmoid flexure. When the greater curvature is only 1 or 2 cm. above the umbilicus, as the patient reclines, this indicates ptosis and is an unmistakable sign of constitutional asthenia. He is convinced of the importance of the floating tenth rib as a sign of constitutional asthenia, and advocates rejection of recruits with this finding as unfit for military service; a movable cecum and palpable pylorus are similar stigmata. In 300 persons examined the cecum was movable in 22 and all had the floating tenth rib with other signs of constitutional asthenia.

Zentralblatt für Chirurgie, Leipsic

July 31, XXXVI, No. 31, pp. 1073-1104

127 *Prophylactic Treatment of Inflammatory Ileus. Heile.
128 Resection of Hip Joint with Fixation of Upper End of Femur to Pelvis. (Hüftgelenksresektion mit Fixation des oberen Femurendes am Becken.) F. de Beule.

Supplement, pp. 1-134

129 Transactions of XXXVIII German Surgical Congress.

August 7, No. 32, pp. 1105-1136

130 Technic of Chondrectomy for Emphysema of the Lung. M. Hofmann.
131 Functional Ultimate Results after Beck's Operation for Hypospadias. A. Exner.

127. **Prophylaxis of Postoperative and Other Forms of Ileus.**—Heile makes a point of stimulating peristalsis in all cases of diffuse peritonitis, etc., by injecting from 50 to 100 c.c. of warm castor oil directly into a high loop of the small intestine before closing the abdomen. A silk draw thread closes the small hole made by the needle in injecting the castor oil. It seems to work more effectively if emulsified with a little soda and water. He has had 30 very severe cases among 250 of peritonitis in recent years, and 5 died of the 20 treated without the castor oil while only 1 died of the 10 receiving the oil, and the one fatality was in a patient practically moribund when operated on. He uses a special syringe which allows aspiration of bowel content before injection of the oil.

Zentralblatt für Gynäkologie, Leipsic

July 31, XXXIII, No. 31, pp. 1067-1104

132 Abdominal Hysterectomy for Placenta Prævia with Uncontrollable Hemorrhage. (Ventrale Totalexstirpation des gebärenden Uterus bei Placenta praevia mit unstillbarer Blutung.) M. Runge.
133 *Mode of Diffusion of Anesthetic in Spinal Anesthesia. (Ausbreitungsmodus des Anästhetikums bei der Lumbalanästhesie.) C. J. Gauss.
134 *Local Anesthesia for Gynecologic Operations. H. Freund. Id. Fisch. Id. J. Wernitz.

August 7, No. 32, pp. 1107-1136

135 *New Technic for Extirpation of the Uterus in Operations for Cancer. (Neues Verfahren zur Exstirpation des Uteruskarzinoms.) P. Zweifel.
136 Abdominal Total Extirpation of Uterine Cancer. (Weitere Mitteilungen zur abdominellen Totalexstirpation des Uteruskarzinoms.) L. Seeligmann.
137 Influence of Roentgen-Ray Exposures on Prenatal Determination of Sex. (Beeinflussung des Geschlects.) M. Fraenkel.

133. **Mode of Diffusion of Anesthetic in Spinal Anesthesia.**—Gauss reiterates that the anesthetic spreads upward only according to the specific gravity of the solution. A solution with a high specific gravity, if the patient is seated, remains localized in the lower part of the subarachnoid space, while the cerebrospinal fluid above does not contain any of it. On the other hand, with a low specific gravity the anesthetic solution spreads rapidly throughout the fluid to the upper thoracic vertebræ which seem to be the top of the column of water, the fluid above being connected with the subarachnoid space in the brain only by capillary interstices, without any solid body of fluid. He states further that the anesthetic introduced is rapidly taken up by the spinal cord, so that the cerebrospinal fluid, even as soon as five minutes after the injection, contains scarcely any of the anesthetic, but after death the nerve substance yields up the alkaloid again so that postmortem the entire amount may be found in the cerebrospinal fluid. The results in experiments on animals can not be applied to man, as the dog has only about 6 c.c. of cerebrospinal fluid throughout the entire subarachnoid space; in the monkey the fluid is so scanty and the spinal cord fills the canal so closely that the injected fluid from lack of space is forced into the upper parts of the canal from purely mechanical reasons. If the patient remains sitting up for four or five minutes after the injection in the arachnoid space the anesthetic is taken up by the spinal cord and the individual can then recline, with the pelvis raised, without fear of spreading the anesthetic above the desired point. The high or low location of the field of operation should determine whether a solution with a low or high specific gravity is to be used. Gauss adds that he has applied spinal anesthesia in a continuous series of 1,500 cases without a mishap, the few observed in a preceding series of 300 cases being evidently due to the imperfections of the early technic.

134. **Local Anesthesia for Operations on the Female Genitalia.**—Wernitz reports 300 cases of abortion requiring curetting in which favorable results were obtained with local injection of a 1 or 2 per cent. solution of cocain representing from 0.02 to 0.04 gm. (5/16 to 10/16 grs.) of cocain. The anesthesia lasted for about 25 minutes and no mishaps were observed in any case, although general phenomena were observed—the ordinary symptoms of the action of cocain, not of intoxication. The injections can be repeated at need, he says, no cumulative effect or special after-effect having been observed in any instance.

135. **New Technic for Hysterectomy for Cancer.**—Zweifel found that peritonitis was responsible for the death in the large majority of the fatalities in the operations for uterine cancer at the Leipsic clinic, and consequently he has been devoting special attention to warding off this complication by complete exclusion of the uterus from the peritoneum. He ligates through an abdominal incision the ovarian and uterine arteries, separates the ureters, also the bladder and rectum from the vagina, leaving the vagina intact until after the two sheets of the pelvic peritoneum, in front of and back of the uterus, have been drawn together and sutured, thus roofing over the uterus. The abdominal wound is then temporarily sutured, completely closing the cavity of the peritoneum. The uterus is then removed through the vagina, the vaginal portion being drawn out until the vagina is inverted and the whole uterus is then removed with the vagina. The only objection to this technic is the necessity to change from the Trendelenburg position to the horizontal; the only bleeding that can occur is from the vaginal artery, which is easily controlled. He reports the case which led to the development of this technic, a very large myoma complicating the carcinoma. The myoma was so large that he had to use a piece of pig bladder to patch the roof of the peritoneum over the uterus; in future he would use rubber tissue for this purpose as the bladder was fetid when expelled. But nothing of the kind is required in ordinary cases. He has treated twenty-four patients by this technic and the surprisingly smooth afebrile convalescence, without a sign of peritonitis, has confirmed the value of this method.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 27, XXX, No. 89, pp. 937-944

138 Blood Picture in Alcoholics. (Formula ematologica negli alcoolisti.) T. Salvetti.
139 Transparency of Lipoma in Comparison with other Tumors. (Per la diagnosi differenziale tra lipoma e sarcoma.) I. Tansini.

August 1, No. 91, pp. 953-968

140 *Scleroderma and Thyroid Deficiency. (Sclerodermia ed atiroidismo.) F. Pedrazzini.

August 3, No. 92, pp. 969-976

141 *Epidemic Resembling Typhoid. (Di una epidemia tifosimile.) G. Dell'Oro.

August 5, No. 93, pp. 977-984

142 *Importance of Parathyroids for Healing of Fractures. (Influenza delle paratiroidi sul processo di ossificazione nelle fratture.) A. Canal.

August 8, No. 94, pp. 985-1000

143 *Abdominal Inflammation Simulating Cancer. (Pseudo-neoplasmi infiammatori addominali simulanti tumori maligni.) R. Cassanello.

140. **Thyroid Origin of Scleroderma.**—Pedrazzini reports five cases of scleroderma in four of which the thyroid was small and atrophied, while in the other the thyroid was large and hard. Thyroid treatment gave good results in the two in which it was applied, commencing with small and progressive doses. None of the patients presented signs of nervous changes suggesting a trophic origin, but everything confirmed the assumption of some connection between the cutaneous affection and the thyroid gland.

141. **Epidemic Resembling Typhoid.**—Dell 'Oro reports a small epidemic in which the disease seemed to be typhoid from the clinical manifestations, but the bacteriologic and agglutination tests were constantly negative and the convalescence was unusually brief.

142. **Influence of the Parathyroids on Fractures.**—Canal's experiments showed that fractures healed very slowly in animals after removal of all or part of the parathyroids. The results indicate that the parathyroids have an important influence on the processes of ossification in healing of fractures. His findings sustain the statements of MacCallum in regard to the influence of the parathyroids on lime metabolism.

143. **Abdominal Inflammation Simulating a Malignant Tumor.**—Cassanello has encountered several cases of apparent cancer in the gastrointestinal tract, but operation revealed merely inflammatory infiltration, and the modifications induced by the laparotomy were followed by the complete subsidence of the tumor. By analyzing his own cases and those in the literature he finds that these inflammatory tumors spread and involve the surrounding organs to a much larger extent than a malignant tumor, so that this lack of clinical individuality, the involvement of several organs, speaks against the cancerous nature of the lesion. In one of his cases the hard woody mass included the stomach, omentum, liver and part of the abdominal wall. The lack of marked outlines and the confused objective findings distinguish these inflammatory tumors; they simulate but do not reproduce the symptomatology and objective signs and course of true neoplasms, and incision of the abdomen is generally followed by the vanishing of these apparently serious disturbances.

Riforma Medica, Naples

August 2, XXV, No. 31, pp. 841-868

144 *Immunity and Immunization against Tuberculosis. E. Maragliano.
145 Transformation of *Staphylococcus pyogenes aureus* into *Staphylococcus pyogenes albus* in Intravenous Inoculations. F. Stinelli.
146 Different Technics for Experimental Research on Effects of Tobacco Smoke. (Studio sperimentale degli effetti del fumo di tabacco.) A. Bosi.
147 Arteriosclerosis and Heart Affections of Industrial Origin. (Arteriosclerosi e cardiopatie da lavoro.) P. Boveri.

144. **Immunization to Tuberculosis.**—Maragliano claims priority for immunization against tuberculosis, having immunized animals in 1895 and having now a group of patients vaccinated against tuberculosis seven years ago. He here describes the history of immunization against tuberculosis and the various technics followed and urges vaccination on a large scale of persons peculiarly exposed to tuberculous infection. The vaccine is easily made and harmless. None of those vaccinated seven years have shown signs of tuberculosis since, and he is convinced that this personal prophylaxis is the true secret of an effectual campaign against tuberculosis. It should rank with vaccination against smallpox. His technic was described in THE JOURNAL, April 2, 1904, page 933, and Dec. 8, 1906, page 1965.

Hospitalstidende, Copenhagen

June 9, LII, No. 23, pp. 705-736

148 Differentiation of Ovarian Cyst from Pregnancy. (Til Belysning af Vanskelighederne ved Differentialdiagnosen mellem Ovariecyste og Graviditet.) H. v. Thun.
149 *Preservation of Instruments from Rust. (Steril Opbevaring af Instrumenter.) P. Videbech.

June 16, No. 24, pp. 737-776

150 Electrolytic Scarification for Acne Rosacea. P. Videbech.
151 Case of Pseudotumor in the Brain. (Pseudotumor cerebri.) G. E. Schroder.

June 30, No. 26, pp. 809-840

152 *Two Cases of Juvenile Paretic Dementia. G. Neve.
153 Case of Congenital Heart Defect with Cyanosis and Polycythemia. (Tilfaelde af medfødt Hjertefejl med Cyanose og Polyglobuli.) V. Bie and V. Maar.

July 7, No. 27, pp. 841-872

154 Sensibility to Light of Albuminoid Substances. (Undersøgelser vedrørende albuminoide Stoffers Lysfølsomhed.) A. Meisling.

July 14, No. 28, pp. 873-896

155 Tonic Accommodation Reaction of Sluggish Pupil. (Om tonisk Akkomodationsreaktion af lysstive Pupiller.) H. Rönne.

149. **To Keep Instruments from Rusting.**—Videbech has been using for five years a mixture of crude carbolic acid and ordinary potash soap, equal parts, in a 3 per cent. solution, to prevent instruments from rusting. He has found also that one or two glass dishes filled with calcium chlorid attract any moisture in the case where instruments are kept. He does not rely on the carbolic-acid solution alone for disinfection, but boils the instruments in it and then keeps them in it.

152. **Juvenile Paretic Dementia.**—Neve reports the clinical and postmortem findings in two cases, discussing the etiology.

In one case the Wassermann reaction was positive in the serum and spinal fluid, although there was nothing to indicate syphilis in the history.

Norsk Magazin for Lægevidenskaben, Christiania

August, LXX, No. 8, pp. 665-768

156 *Free Bone Plastic Operation for Pseudarthrosis of the Neck of the Femur. (Pseudarthrose i collum femoris behandelt med fri benplastik.) H. Wille.
157 *Two Hundred and Seventy-five Cases of Eclampsia. J. Horn.
158 Otogenic Sinus Phlebitis and Thrombosis. Prognosis, Prophylaxis and Treatment. (Den otogene pyæmi, sinusflebit og sinusthrombose, med hensyn til prognose og behandling.) V. Uchermann.
159 Operative Treatment of Glaucoma. J. Borthen.

156. **Treatment of Pseudarthrosis with a Bone Peg.**—Wille cut a peg six inches long and about the size of the little finger, from the tibia, with its periosteum. This peg was driven into the neck of the femur after fracture of the neck which refused to heal under the ordinary measures. The hole was bored for the peg with an electric motor, the peg driven in and a plaster cast applied, and the patient has been cured of all disturbances since, although he still limps slightly.

157. **Two Hundred and Seventy-five Cases of Eclampsia.**—Horn reviews the experience of twenty years with eclampsia, comparing the outcome under different methods of treatment. Since more active measures have been introduced, the mortality of both mother and children has been reduced by one-half. He tabulates the details of 14 cases; the 10 treated by vaginal Cesarean section are to be discussed later.

Ugeskrift for Læger, Copenhagen

July 8, LXXI, No. 27, pp. 751-788

160 *Standardization of Drugs, Etc. (Om Standardisering af Lægemidler.) A. Erlandsen.

July 15, No. 28, pp. 789-812

161 Experiences with Sixty Gall-stone Operations. (Galdesttenssygdommens kirurgiske Behandling.) E. Müller.

July 29, No. 29, pp. 813-840

162 *The Danish-French Leprosy Expedition. (Den dansk-franske Spedalskhedsexpedition.) E. Ehlers.
163 Coffee and Substitutes. (Om Kaffe, Kaffesurrogater og koffeinfri Kaffe.) E. E. Faber.

160. **Standardization of Drugs.**—Erlandsen reviews what has been done in this line in various countries in regard to ergot, digitalis and suprarenal preparations.

162. **The Danish-French Leprosy Expedition.**—Ehlers was the leader and was accompanied by one Danish and two French experts. Before starting, at Metchnikoff's suggestion, they spent two months at the Pasteur institute at Paris where several lepers were under treatment and volunteered as subjects for experiments, among them a medical student from Haiti with a peculiarly malignant form of leprosy. The special aim of the expedition was to determine whether insects are involved in the transmission of leprosy. Their findings all indicate that this is not the case. Even when they punctured a nodule and sucked the blood into the pipette with the mouth—a new method aiming to imitate the bite of an insect—and found numbers of bacilli in the fluid, insects biting the same person merely took up pure blood. The blood-sucking insects, he says, merely suck blood; they do not introduce a poison, like bees. The experiments were made on 50 lepers in the Danish West Indies, and the Wassermann test gave constantly positive findings in all patients with nodular leprosy, while the reaction was vague or negative in the anesthetic form and in the stationary and cured cases. The expedition regards this test as destined to prove as important in leprosy as it has been found in syphilis. Turpentine fixation abscesses gave negative results, and no signs of leprosy were found in 160 rats examined. A casual finding was the discovery of *Filiaria sanguinis hominis* in the stomachs of bodylice. The chief expenses of the expedition were borne by the Danish engineer, Davidsen, at Paris; the French government paid the expenses of one member; the transportation companies carried them all free of charge.

On the way home Ehlers stopped at Porto Rico and states that he thinks that leprosy there is much more common than generally recognized. He mentions in conclusion that he was summoned to Washington, on his arrival in New York, to testify as a leprosy expert in the case of a man (Early) who was suing the authorities for damages for unwarranted incarceration, as compulsory isolation had been imposed on the assumption that he was a leper. After careful examination Ehlers thought that the man really was afflicted with leprosy, contracted in the Philippines. [This case has been mentioned in THE JOURNAL, and an account of it appears in the September *Munsey*. The patient is now under observation at the New York Skin and Cancer Hospital, but not under restraint.—ED.]

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

UNIVERSITÉ DE TOULOUSE: ANNÉE SCOLAIRE 1907-1908: RAPPORT ANNUEL DU CONSEIL DE L'UNIVERSITÉ (6 JANVIER 1909). Comptes Rendus des Travaux des Facultés et des Observatoires. Rapports sur les Concours Lus au Conseil de l'Université le 6 Décembre, 1908. Paper. Pp. 165. Toulouse: Imprimerie et Librairie Edouard Privat, Libraire de l'Université, 14 Rue des Arts, 1909.

AN INQUIRY CONCERNING THE ETIOLOGY OF BERIBERI. By Henry Fraser, M.D. (Aber.), Director, Institute for Medical Research, and A. T. Stanton, M.D., Bacteriologist, Institute for Medical Research. Studies from the Institute for Medical Research, Federated Malay States, No. 10. Paper. Pp. 24, with illustrations. Price, 3 shillings 6 pence net. Singapore: Kelly and Walsh, Limited, Printers, 1909.

AMERICAN PRACTICE OF SURGERY. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Edited by Joseph D. Bryant, M.D., LL.D., and Albert H. Buck, M.D. Complete in Eight Volumes. Volume VI. Cloth. Pp. 916, with 624 text illustrations, and 39 plates. Price, $7. New York: William Wood & Co., 1909.

MODERN PROBLEMS IN PSYCHIATRY. By Ernesto Lugaro, Professor of Neuropathology and Psychiatry in the University of Modena. Translated by David Orr, M.D., and R. G. Rows, M.D. Publications of the University of Manchester, Medical Series, No. XII. Cloth. Pp. 305, with illustrations. Price, 7 shillings 6 pence net. Manchester: University Press (Sherratt and Hughes), 1909.

STUDIES ON LEPROSY. IV. The Utility of the Examination of the Nose and the Nasal Secretions for the Detection of Incipient Cases of Leprosy. By Walter R. Brinckerhoff, S.B., M.D., Director Leprosy Investigating Station, Public Health and Marine-Hospital Service and W. L. Moore, M.D., of Honolulu, Hawaii. Paper. Pp. 29. Washington: Government Printing Office, 1909.

THE HARVEY LECTURES, Delivered under the Auspices of the Harvey Society of New York, 1907-08. By Professors Edwin O. Jordan, James Ewing, David L. Edsall, Ernest H. Starling, George Crile, Joseph Jastrow, Otto Folin, Ross G. Harrison, E. A. Schäfer and Alonzo E. Taylor. Cloth. Pp. 266. Price, $3. Philadelphia: J. B. Lippincott Co., 1909.

MANUAL OF CHEMISTRY. By W. Simon, Ph.D., M.D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore, and Daniel Base, Ph.D., Professor of Chemistry in the Maryland College of Pharmacy. Ninth Edition. Cloth. Pp. 714, with 87 illustrations, 9 colored. Price, $3 net. Philadelphia: Lea and Febiger, 1909.

THE PRINCIPLES OF BACTERIOLOGY. By A. C. Abbott, M.D., Professor of Hygiene and Bacteriology, and Director of the Laboratory of Hygiene, University of Pennsylvania. Eighth Edition. Cloth. Pp. 631, with 100 illustrations, 26 colored. Price, $2.75 net. Philadelphia: Lea and Febiger, 1909.

OBSTETRICS. A Manual for Students and Practitioners. By David James Evans, M.D., Lecturer on Obstetrics and Diseases of Infancy, McGill University, Montreal, Canada. Second Edition. Cloth. Pp. 440, with 172 illustrations. Price, $2.25 net. Philadelphia: Lea and Febiger, 1909.

A TEXT-BOOK ON PHYSIOLOGIC CHEMISTRY. By John H. Long, M.S., Sc.D., Professor of Chemistry in Northwestern University Medical School, Chicago. Second Edition. Cloth. Pp. 396, with 42 illustrations. Price, $2.50 net. Philadelphia: P. Blakiston's Son and Co., 1909.

SPRAINS AND ALLIED INJURIES OF JOINTS. By R. H. Anglin Whitelocke, M.D., M.C., F.R.C.S., Honorary Surgeon to the Radcliffe Infirmary and County Hospital at Oxford. Cloth. Pp. 241, with 65 illustrations. Price, $3. New York: Oxford University Press, 1909.

IMMUNITY AND SPECIFIC THERAPY. By W. D'Este Emery, M.D., B.Sc., Clinical Pathologist to King's College Hospital and Pathologist to the Children's Hospital, Paddington Green. Cloth. Pp. 448, with illustrations. Price, $3.50 net. New York: Paul B. Hoeber, 1909.

NAVAL HYGIENE. By James Duncan Gatewood, M.D., Instructor in Naval Hygiene, United States Naval Medical School, Washington. Cloth. Pp. 779, with 113 illustrations, 8 colored. Price, $6 net. Philadelphia: P. Blakiston's Son & Co., 1909.

PHYSICAL DIAGNOSIS. By Richard C. Cabot, M.D., Assistant Professor of Medicine in Harvard University. Fourth Edition. Cloth. Pp. 579, with 245 illustrations. Price, $3 net. New York: William Wood & Co., 1909.

PROTOZOOLOGY. By Gary N. Calkins, Ph.D., Professor of Protozoology in Columbia University, New York. Cloth. Pp. 341, with 129 illustrations, 4 colored. Price, $3.25 net. Philadelphia: Lea and Febiger, 1909.

THE OHIO ASSOCIATION OF MEDICAL TEACHERS. Transactions of the Fourth Annual Meeting. Including Constitution and By-Laws. Paper. Pp. 29.